HUNT'S

MERCHANTS' MAGAZINE.

OCTOBER, 1841.

Art. I.—RUSSIA, AND HER COMMERCIAL STRENGTH.

Population and territory of Russia—physical resources—manufactures—commercial resources of the Russian empire—commercial qualifications of the Russian people.

In the spring of 1698, there arrived at Amsterdam a pilgrim from the farthest east, who had placed before him a shrine of a less romantic, though of a more propitious character, than those which are usually the objects of the pilgrim's adoration. As an apprentice in the great ship-building manufactory of the town he enrolled himself, and it was not until he had meted his arm with those of his better drilled competitors, and mastered the trade he had come to learn, that his workman's apron slipped off, and he stood forth in the robes of the Czar of Muscovy. He might have thought, as he looked around him in his week-day labors, on the huge timbers and the unshapen trunks which were dragged into the workshop from the forests of Denmark, of a country that lay stretched in vast and inhospitable masses, in a region to which the most enterprising merchants of Amsterdam had not pierced. He might have laid out, also, at the time when he was collecting the tools which were to build up an arm of the national defence, the plan on which the great empire that was intrusted to his care, was to be hewn and moulded, till it was fitted to take its place in the society of nations. With an ambition more holy than is common among his brother monarchs, he entered upon the task of shaping and knitting together the vast though unwieldy materials that were brought before him; and with a workmanship more rapid than that by which European statesmen are generally distinguished, he suffered not a moment to elapse in which a plank was not smoothed, or a nail driven. The hulk had scarcely lain on the stocks long enough to rest her timbers from the strain which they had undergone, before she was launched into the ocean that was spread before her, in the majesty of her complete attire. Russia is now the strongest, as in a few years she will be the most powerful, among European nations; and while from the immensity of her

frame and the diversity of her climate, she presents capabilities for every species of exertion, she may expect, in the freshness of her youth, to live onward to a period which will place old age at the distance of centuries. As Americans, we stand on a level with her on the platform of nations; from the same century our mutual existence is dated; and from the contiguity of our dominions, and the connection of our trade, we have been joined in a union with her, which will continue to exist when its origin is placed in antiquity. We propose at present to collect from the accounts of travellers who have visited her shores, and from the reports of her own municipal authorities, the data which are laid open of her past growth, and her present condition. The work will be of interest to the theorist, and we may hope, of use to the practical man.

We shall consider at present,

I. The population and territory of Russia.
II. The physical resources of Russia.
III. The manufactures of Russia.
IV. The commercial resources of the Russian empire.
V. The commercial qualifications of the Russian people.*

I. *Russia, with regard to its population and territory.*

The following table is made up from the computation of 1829, which is the latest that is, as a whole, on hand. There are returns, however, of single provinces, of a much more recent date, which we will make use of under other heads.

	Area in German sq. miles.	*Area in English sq. miles.*	*Gross Population.*	*Ratio of Pop. to sq. miles German.*	*Ratio of pop. to sq. miles English.*
I. Russia in Europe	73,154	1,281,095	45,801,239	609	34 1-5
A. The Baltic Provinces	9,023	157,904	3,336,550	370	21 1-7
B. Great Russia	43,390	759,325	21,452,000	494	28 3-10
C. Little Russia	4,138	73,415	5,674,000	1,371	80 3-5
D. South Russia	6,773	118,427	2,801,500	320	12 3-7
E. West Russia	7,537	131,897	8,448,900	1,125	65 1-2
F. Duchy of Poland	2,293	40,127	4,088,289	1,894	113 3-10
II. Russia in Asia	270,350	5,721,125	9,150,000	38	2 1-10
A. Duchy of Kasan	11,500	201,250	4,200,000	365	18
B. Duchy of Astrachan	13,800	231,500	2,100,000	142	8 3-7
C. Caucasian Territory	5,940	103,950	1,948,000	328	12 9-10
D. Siberia	208,000	4,640,000	800,000	3 5-6	1-5
E. Circassia	30,000	525,000	100,000	3 2-5	1-6
F. Russian Isiatic Islands	1,110	19,425	2,000	1 3-10	2-25
III. Russia in America	17,500	306,250	50,000	2 6-10	1-8

Of the whole empire, Russia in Europe, though in itself one half of Europe, forms one fifth; the duchy of Poland, one hundred and seventy

* We make use of the first opportunity of expressing our obligations to a work, from which is taken the greater part of the statistics we shall give, as well as the order in which they are thrown: "*Handbuch der Allgemeinen Staatskunde; bei Schubert—Berlin*, 1835, 4 *Band*." It has never yet, as far as we can learn, been translated, though it deserves a place on the table of the merchant, as well as in the library of the political economist.

fifths; and Russia in Asia, three fourths. The whole area is more than twice that of all Europe, ($2\frac{7}{19}$ times;) and is nearly one sixth of the entire compass of the earth. Its gross population is one fourth of that of Europe, though of the whole amount its Asiatic territories contribute but one sixth. Throughout Russia in Asia, with the exception of a few of the southwestern provinces, the ratio of population is only one to five miles square, a proportion too small to be of use either for defence or available for cultivation.

II. *The physical resources of Russia.*

1. *Agriculture.* From the great scarcity of labor and the vast amount of unoccupied territory, it is calculated that in the most prosperous provinces, the gross amount of produce is but one half of that of which the soil is naturally capable. Personal labor appendant to the soil has become, therefore, an object of investment more advantageous than the soil itself; and a system of slavery has thus grown up, of a character like that of the old English villenage. The following statement is taken from "*Herrman's Beitrage zur Physick, &c., des Russischen Staates.*"

	Dessetinen.	*Acres.*
Whole area of Russia in Europe . . .	402,100,552=	1,125,881,546
Land covered with wood and brush . .	156,000,000=	436,800,000
Land uncovered	178,000,000=	505,400,000
Land under improvement	61,500,000=	172,200,000
Meadow land capable of improvement .	6,000,000=	16,800,000

The amount of land under improvement is less, therefore, than one sixth of the entire territory.

A table for 1802 rates the gross amount of grain consumed in that year in the European territories, at about 400,000,000 Berlin bushels; which leaves, on an average, including the usual consumption for beer, bread, and the nourishment of cattle, about ten Berlin bushels, or fourteen of our own, to each individual. Hemp and flax are the most profitable and the most cultivated of the natural productions; and they have risen within the last twenty years to a value which has made them an important ingredient in commerce. In the Krimm and in the southern districts of Russia, the vine is cultivated with great success. The quantity of wine raised was estimated in 1825, at more than 500,000 *wedras* annually, (about 1,600,000 of our wine gallons.) In the Ukraine, in Podalia, and on the Volga, tobacco fields have been lately planted to so great an extent, that the yearly crop amounted in 1834 to 300,000 puds, or 12,000,000 lbs. The hop is confined to Poland, West Russia, and Little Russia.

2. *Live stock.* Her immense amount of pasturage has given Russia advantages for the raising of live-stock unequalled in Europe. There is a climate for every grain, and cattle for every climate. In the southeast, the market is so full that single proprietors have been frequently known to own herds to the amount of 10,000 horses, 500 camels, 3,500 head of neat cattle, and 10,000 goats. Reindeer at the north, and horses among the Tartars, form not only the floating capital, but the medium of exchange. The sheep is spread, under various modifications, over the whole territory, and attempts have been in some degree successful to introduce the merino breed. There are no general calculations of the entire stock that can be relied on, though from the fact that the amount of tallow, of hides, of bristles, and of wool annually exported, amounted in

1831 to $15,000,000, we can form an estimate of the extent to which the commodity from which they are derived is produced.

3. *Mining.* The principal mines are found in Siberia, in Ural, in Altai, and in the Nertscherischen mountains. In the government of *Perm*, where four fifths of the mineral ore is found, more than 180,000 men are employed, together with 200 iron works, more than 1,200 forges, 27 copper smelting houses, 200 ovens, and 12 smelting houses for silver and lead. We give a table of the amount forged from 1704 to 1809 inclusive, together with one for the single year 1810.

	1704 to 1809.		1810 alone.	
	Puds Rus.	Pounds.	Puds Rus.	Pounds.
1. Gold,	1,726½ =	69,050	41 =	1,640
2. Silver,	61,856 =	2,476,240	1,250 =	50,000
3. Copper,	9,820,055 =	392,802,200	202,657 =	8,106,280
4. Iron,	671,701,000 =	691,701,000	5,838,957 =	233,557,480
5. Lead,	5,324,000 =	212,960,000	50,000 =	2,000,000
6. Vitriol,	48,000 =	1,920,000	3,892 =	155,680

In the last thirty years the mines have been more actively worked, and with much greater success. In 1821, there were gold mines discovered in the government of Tobolsk, near the Ural mountains, of considerable extent. In 1823, 7,792 men were employed in mining and refining alone, and a little while after the number amounted to 15,000. The sand by itself, without taking into consideration the lumps of pure metal, yields $\frac{1}{35}$ per cent of refined gold. The produce from 1830 to 1834, is thus given:

	Russ. Puds.	*Pounds.*
1830	355	14,200
1831	359	14,460
1832	364	14,660
1833	341	13,640
1834 (*from Jan. to June,*)	167	5,680 (*half year.*)*

The average produce of the five years is about 350 puds, or 14,000 pounds, which is worth, according to Schubert's valuation, 5,145,000 Prussian dollars,† or nearly the whole annual profit of the Brazilian mines.

Of platina there were produced from June, 1824, to January, 1834, about 678 puds, (27,120 pounds,) out of which 476 puds (19,040 pounds) pure metal were extracted, and from which 400 puds (16,000 pounds) were thrown into bars, which brought in the market 8,186,620 silver rub., (about 6,300,000 Prussian dollars.) The profits of the three years following were equal to an average of 110 puds, or 4,400 pounds a year, yielding an annual revenue of 369,000 Prussian dollars.

The silver mines have remained almost stationary since 1810. The yearly profit varies between 1,225 and 1,300 puds, and if we take the average of 1,260 puds, (50,400 pounds,) the actual value may be placed at about 1,234,000 Prussian dollars.

The amount of copper produced between 1810 and 1830, averaged at about 265,000 puds, (10,600,000 pounds.) As the principal copper mines are in the hands of the crown, it reaps whatever revenue they are

---

* Das Russische Reich,—Erster Band,—s. 220.

† The Prussian (convention) dollar is rated at 97 cts. 2 d.

capable of, and in 1823, according to a report then published, received 250,000 puds or 10,000,000 pounds of the pure metal, equal in value to nearly 2,650,000 Prussian dollars.

In the mountains both of European Russia and Poland, iron is very abundant. From 1829 to 1835, the average produce was 9,000,000 puds or 360,000,000 pounds, of an annual value of 12,000,000 Prussian dollars. An official statement of the trade in the ten years between 1824 and 1834, makes the yearly value of the exports of raw iron and copper to be equal to 2,850,000 Prussian dollars.

The salt mines of Russia and of the duchy of Poland form their great natural staple. In 1810, in Russia proper alone, the amount produced was equal to 26,538,000 puds, (1,061,520,000 pounds.) In 1835 it had arisen to 30,000,000 puds, (1,200,000,000 pounds,) being worth about 16,600,000 Prussian dollars.

The following table, then, of the mineral produce and its value, may be thus made up.

	Average produce from 1830 *to* 1835.		*Value.*
	Puds.	Pounds.	Prussian dollars.
Gold	350=	14,000	5,145,000
Platina	110=	4,400	369,000
Silver	1,260=	50,000	1,234,000
Copper . (1823) .	250,000=	10,000,000	2,650,000
Iron	9,000,000=	300,000,000	12,000,000
Salt . . (1835) .	30,000,000=	1,200,000,000	16,600,000
		Total value,	37,998,000

III. *The manufacturing resources of Russia.*

Russian industry has kept pace in its advancement with the government, to whose support it so powerfully contributes. In the temporary halts or the temporary retrogressions which were suffered by the body politic during the reigns of Paul and Alexander, the productive industry of the nation was proportionally checked and retarded. To throw the empire into the form of a great universal manufactory, was the cardinal design of Peter the Great; and to link inseparably the working classes with the government, to dispense with the interference of an aristocracy under any of its phases, has been the policy of himself and his successors. The master workman stood at the centre of the machinery, and directed without appeal and without opposition the most trifling workings of the wheels around him. Overseers and slaves were placed by him on an equal level. He was the chief engineer, and as the whole responsibility rested on his shoulders, he felt it proper that he should wield the whole authority. Such a station requires, it is true, the most consummate experience, and the most unwavering decision. It has been the good fortune of the Russian monarchs, since Peter the Great, whatever might be the degree in which they possessed the first qualification, to be by no means deficient in the second. A history of their commercial enterprises, is a history of the commerce of their country itself, so completely have they secured within their hands the control of the actual energies of the realm. We shall run over the measures which have been successively taken by the government, for the support of its manufacturing resources, as the best account that can be given of the progress of the manufactures themselves.

Ivan I. and Ivan II., under whose reigns Russia asserted her claims to be considered as an independent nation, were the earliest among the czars who directed their attention to the productive capacity of their country. Workmen and artists were called from Germany, from the Netherlands, and from Italy, to inoculate, in the deserts of Russia, the spirit of industry which had made their homes the armory as well as the orchards of Europe. In Moscow, in Jaroslaw, in Pskow, in Smolensk, and in Kiew, there were established manufactories for cloth, linen, and arms, and even for heavy silks and gold lace. But through the civil war that was fomented by the ambition of the house of Romanow, and by the incursions of the neighboring powers of Sweden and Poland, the progress both of foreign trade and manufactures was stopped. Till the accession of Peter the Great, in the close of the seventeenth century, the nation was employed exclusively in efforts to regain the station among the states of the north which it had lost by its domestic dissensions. Peter the Great, by laying the foundation for the manufacturing resources of the empire, took the true step for its political elevation. He had witnessed, during the pilgrimage which in his early life he had passed through, the prosperity and vigor of the commercial nations of Europe, and the decay of those who had neglected either to foster their own productions, or to exchange them with those of others; he had seen that the body politic, when its arteries are choked, and its veins are opened, and its muscles are suffered to become languid through inaction, loses its vigor and becomes the prey of inward corruption and outward attack. In the wisdom which so significant a lesson had pressed on his mind, and with the decision which was so intimately knit in his constitution, he determined to use the first moment of power in transplanting, in his own soil, the seed that had been so fruitful in others. The foreign workmen who were brought by his invitation within the state, were endowed at once with peculiar privileges and immunities, were excepted from the jurisdiction of the ordinary civil and military tribunals, and were chartered as a company which was to be placed under the immediate protection of the senate. In Tula, in Potrosawodsk, and in Sestradeck, there were founded manufactories for arms of every description, from the heaviest cannon to the slightest pistols and dirks. Powder-mills and saw-mills of all orders were built in the neighborhood of the two principal cities. In 1720, there was erected in Moscow the great imperial manufactories for woollen goods and linen; while at St. Petersburgh, and in its vicinity, immense factories were founded for the preparation of mirrors and other costly glass wares, carpets, cotton-goods, and sugar. By the death of Peter the Great, twenty-one great imperial manufactories, and a great number of smaller dimensions, had been founded at the entire cost of the government.

The immediate successor of Peter, in order to raise the revenues by means of customhouse impositions, turned the patronage of the state rather to the encouragement of foreign than of domestic industry. It was under the reign of Elizabeth that the policy of her great predecessor was revived; and at the time of her death the number of manufactories in the empire amounted to five hundred and two, of which twenty-six, with twelve hundred workmen, were for silken stuffs, seventy-six for cloth, eighty-eight for linen, and thirty for cotton. Catherine II. employed herself still more actively in the promotion of internal trade, and added in a great degree thereto by the foundation of a number of smaller institutions which

were exempted from the evils which were inherent to those on a more exaggerated scale. During her reign of thirty-four years, the actual amount of the factories was tripled. The same maxims were carried out both under Paul and Alexander, so that in the year 1812, at the time of the French invasion, the sum total had increased to 2,332, in which were employed 119,093 workmen, (64,041 free, 31,160 crown slaves, and 27,292 private slaves;) and in 1820 it arose to 3,724 factories, the annual value of whose produce was estimated at about 37,000,000 Prussian dollars.*

The following table of the relative condition of the various manufactures is compiled from the report of 1828.

1. *Linen.* The number of linen manufactories of the larger class was equal to two hundred and ten, in which about 9,900,000 yards (21,500,000 *Berlin ells*) of stuff are yearly produced. The site of the principal manufactories is in West Russia, Little Russia, and Moscow.

2. *Cloth.* The manufacture of wool, in its various modifications, has been an object at all times of great concern. As late as the reign of Catherine II. the whole army was clothed in English fabrics, and even under the reign of Alexander, the home productions were not sufficiently advanced to be exclusively made use of, even under government direction. The demand for coarse and ordinary cloth, also, for the purposes of the Chinese trade, was becoming pressing; and the consequence was that from one hundred and eighty-one, which covered in 1820 the number of the cloth factories, they increased in 1820 to four hundred. 330,000 yards of coarse cloth, and 266,000 yards of fine cloth, cassimere, and flannel were, between 1825 and 1828, annually brought to market. The finer cloths, however, are by no means equal to the domestic demand; and ever since 1825, the yearly import of foreign cloth has amounted to from 1,500,000 to 2,000,000 Prussian dollars.

3. *Cotton.* The cotton manufactories amounted in 1828 to five hundred and twenty-one, which produced annually about 40,000,000 yards of all qualities. Besides the amount brought in from Georgia and the neighboring provinces, raw cotton to the value of 10,000,000 Prussian dollars is annually imported, which is manufactured into goods which sell at about 30,000,000 Prussian dollars. Since 1830 it is estimated that on an average more than 1,500,000 Prussian dollars of cotton goods already made up have been yearly introduced.

4. *Silk.* The silk manufactories are contained principally in the three chief cities. They have risen between 1820 to 1828 from one hundred and fifty-six to one hundred and ninety-eight in number, and consume of a yearly import of the raw material of the value of 1,400,000 Prussian dollars. The yearly worth of their products from 1825 to 1830, averaged at near 3,000,000 Prussian dollars.

5. *Metal-ware.* Through the great riches of the Russian mines, the metal-ware manufactories form one of the distinguishing features of the productive industry of the empire. In 1820 there were as many as two hundred and fifty-eight factories, of which fifty-one were for brass, and in 1828 there were two hundred and ninety-one factories, of which one hundred and eighty-two were for tools and steel ware. In the imperial fac-

* W. C. Friebe über Russlands Handel, Industrie und rohe Producte-Schuberts Allgemeine Staatskunde, I. 224–7.

tory at Tula, there are upwards of 7,000 workmen employed, and the annual production between 1825 and 1830 was equal to 70,000 muskets, pistols, and sabres.

6. *Glass and clay.* One hundred and sixty-six manufactories were occupied in 1828 in the preparation of glass and crystal in their various modifications, which afforded yearly upwards of 15,000,000 bottles, 80,000 baskets of table glass, together with glass ware of the finer description in considerable quantities. The porcelain works amount to twenty-one.*

7. *Leather.* The leather manufactories are the most ancient in the Russian empire. Russian hides formed a subject of trade as far back as the middle ages, and the czars in the most uncivilized eras broke through their usual principles in furthering the production of a commodity on which their military grandeur so much depended. In 1820 there were about 1,406 leather factories, which increased in 1828, with the inclusion of Poland, to 1,930, in which over 3,500,000 hides were each year dressed and prepared. The export of hides and leather in its different forms between 1828 and 1830, has averaged between 2,400,000 and 3,000,000 Prussian dollars.

8. *Soap, Tallow, and Wax*, from the great supply of their component materials, form a principal staple in the domestic trade. Two hundred potash manufactories yield yearly over 2,000,000lbs., of which amount to the worth of 1,000,000 Prussian dollars are annually exported. In seven hundred soap manufactories 80,000,000lbs., which are annually produced, are not only sufficient to meet the great domestic demand, but yield about $800,000 annually in exports. About 16,000,000lbs. of tallow are yearly consumed by three hundred candle manufactories, though there was still remaining, between 1825 and 1830, enough of the raw material to be valued, when thrown into the foreign trade, at $13,000,000.

9. *Sugar.* In 1827 there were thirty-nine sugar refineries in the empire, which produced 39,000,000lbs. sugar, and 1,006,440lbs. syrup. The importation in 1829 of raw sugar was valued at about 11,890,000 Prussian dollars,† though in 1832 it was diminished one fifth. The preparation of sugar from the beet root is carried on in the governments of Saratow and Orel.

10. *Brandy.* The principal brandy distilleries are in the hands of the crown, and reached in 1825 to twenty-five in number. The private distilleries are as many as 23,315, but from the great limitations which are

---

* The largest mirror in the world, as it is rated by Schubert, was built in the Imperial Glass Works. Its dimensions are 150 inches in height, and from 90 to 96 in breadth.

† We have rated, so far, the Prussian dollar, from which our calculations have been reduced, at the convention valuation of 70 cents. Such appears to be the valuation assumed by the tables from which we have quoted, although, as the coin is extremely variable, it is difficult to hit upon a standard that will be uniformly intelligible. The ruble is still more uncertain, as it ranges in exchange from 84 to 37 cents. The silver ruble, however, was fixed by an ukase of 1829 at 360 copecks, and is stated by Mr. McCulloch to average on exchange at 3s. 2¼d. The *paper* or *bank* ruble, which is the standard of account, is fixed by an ukase of 1811 at 100 copecks, and we can reduce therefore its value in American coin, to 21cts. 5d. In the following pages, we will make use, exclusively, of the valuation thus given.

laid on them by the imperial monopoly, their business is subject to considerable drawbacks. In 1801 there were produced 601,920,000 *gall.*, of which one sixteenth from the crown, and fifteen sixteenths from private distilleries, and which consumed one ninth of the crop of grain of the season. There are no data on hand by which we can estimate the produce of succeeding years, though from the fact that the taxes on its consumption doubled in the 24 years ending at the close of the reign of Alexander without any alteration in their comparative value, we can infer that its manufacture had greatly increased. There were employed in 1827, without taking into account the number engaged in the various manufactures above mentioned, upwards of 702,652 workmen in the simpler branches of trade. It is in these, indeed, that the strength of the Russian empire consists. Great factories, while from the extended division of labor which they afford, and from the vast quantity of power which they bring to bear on a given point, they are the best calculated for the immediate concerns of trade, are by no means congenial to the genius of a government whose policy it is to crush the strength of its subjects by dealing with them singly. The little grains, the slight particles of sulphur, of charcoal, and nitre, which would remain in the most complete inactivity were they kept by themselves; when they are heaped together require a spark of incendiarism alone to ripen them to explosion. The Russian serf might catch the contagious disease which has lifted the crest and nerved the spirit of the working men of every other European nation, were he to be placed in a crowd and be allowed to mingle his own injuries with the common wrong, and to assume the common wrong for his own. Wo to the cumbrous pillars of the giant empire, should he seize them with his arms when his strength has been invigorated by communion! The practised eye of Peter the Great saw that the secret by which the elements were to be chained was *disunion;* that if they should unite and direct their efforts against the cave in which his ancestors had chained them, they would shatter it in the blow, and that to preserve the equilibrium entire, each ingredient force must be cut out from the system in which it is imbedded, and be spread by itself in a strand in which it would cease to be affected by the sympathy of others. He was to form an empire which was to be a monster in the economy of nature; and by the dissection of the old establishment, and by the piling together of its members in a posture in which the mutual action which naturally existed between them would be lost, he accomplished the grand object of his ambition. There were to be no interior arteries, no intimate reticulation of nerves, no complex commingling of fibres, in the body politic. The riot act was to forestall tumult, and not to intercept it. Those great civil societies in which, in our country, society collects its wandering humors, were eradicated from the system which the Russian emperor produced. If it was expedient that some great factory should be established for the prosecution of a cardinal branch of trade, or that an army of laborers should be collected to carry out a national enterprise, the workmen were marched up as culprits to execution, and watched as prisoners at the dock. So complicated a process brought upon the government expenses which it would willingly have spared, and cares which aggravated to a point almost unsupportable its official duties; but the process, however complicated, was necessary to the scheme which it was to effectuate. Great as has been the progress of Russia in her domestic manufactures, it would have been still greater had it not been for the drawback which it received from

the fact that the workmen are under the guard of the military, and the military of a secret police.

IV. *The commercial resources of the Russian empire.**

From the indefatigable exertions of Peter the Great, the commerce of Russia received not only its first impulse, but its entire direction. He opened for the first time the harbors of the Baltic and the Black Sea. In his political dealings with the remotest nations, he kept constantly in view the object to which his early education had been directed, and which, to the last moment of his life, was paramount in his thoughts. Shipbuilding had been the occupation of his apprenticeship, and as long as he retained the sceptre, shipbuilding, though on a much grander scale, was his amusement and his study. Catherine II. enjoyed, during her restless reign, the advantages which had been laid down by her great ancestor, and as, in the prosecution of her ambitious schemes, she found her treasury and her armories filled by the taxes and the tithes of the foreign commerce, she entered with fresh zeal on the prosecution of an enterprise so congenial both to revenue and to comfort. We can find the results of her summary diplomacy in the commercial treaty with Denmark in 1782, with Persia in 1784, with Austria in 1785, with Naples, Sicily, and Portugal in 1787, with the Porte in 1792, and with England in 1793. The Imperial-Assignation-Bank was chartered by her, with the purpose of extending the circulation, in 1768, and was assisted with the entire credit of the state. Even under the reign of Paul, whose foreign policy was so wavering and disastrous, the interests of trade were prosecuted with unabated vigor; and in his administration were founded the discount offices in 1797, the insurance offices in 1798, the Imperial-Mortgage-Bank in 1797. In 1799, after a survey of his dominions in North America, he was induced to take under his protection the Russia American Trading Company, with a capital of 2,750,000 rub. pap., (about $550,000,) in 5,500 shares.

Through the attention of the Emperor Nicholas, an impulse still stronger has been given to Russian trade. The Imperial-Discount-Bank, (*die Reichsleihbank*,) founded in 1803, produced a salutary influence on the general exchange of the country; and in 1818, still greater assistance was obtained by the enlargement of the Bank of Commerce, whose notes were based on governmental credit, and were received throughout the empire in payment of treasury dues. Its circulation in 1823, was over $39,487,000†. A company for the herring fisheries of the White Sea, was chartered in 1825, which was endowed with privileges well calculated to secure the important object to which it was directed; and,

---

* The tables which we present of Russian commerce, are taken originally from the Annual Register of A. V. Richter, (1 Heft. 5. s. 443–62,) and from Schubert's Statistik, vol. 1., p. 232, which profess to be based on the official reports of the Russian government.

† We cite the amount of Russian banking-capital as an evidence of commercial enterprise, and not as a test of commercial prosperity. As paper-money, it may be remembered, however, is secured from depreciation in Russia by the assistance of the credit of the state, it is more oppressive to the people in general, though less detrimental to trade, than it would be in a country where it is liable to the depredations of bankruptcy, the shocks of speculation, and the pilfering of embezzlement.

in the same year, schools were founded in St. Petersburgh, Riga, Odessa, Archangel, Kholmogory, and Irkutzk, both as nurseries for the merchant service, and as seminaries for the more important trades. The conquest of Poland, fatal as it was both to the existence of the conquered country, and the reputation of the conqueror, brought into the Russian custom-houses, not only the entire commerce of the dependent state, but that which, under her previous independence, she had carried on with others. The Emperor Nicholas had followed out the course of his predecessors, by the commercial treaties with Persia and Turkey, in 1828 and 1829. The internal trade has been stirred up to a fresh vigor, by the new water communications which he has opened through the interior of the state, and the high-roads which have been stretched over it. The waves of those mighty rivers which fall downward on the continent, from the immense trunk of the Arctic, like roots which are struggling to carry back to the frozen zone, from which they come, nourishment from the rich soil into which they are extended,—the waves of the great northern rivers, and the icy fields of the seas to which they belong, have been ruffled and carved open by the rapid march of steam-ships which have been sent from the workshops of the south, and in some cases from the factories of our own country, to open in latitudes which before had been impenetrable a trade which will lead them before long to participate in the civilization, if not the climate, of more temperate degrees. Of the entire foreign trade, St. Petersburgh possesses one half, Riga one eighth, and Odessa one twelfth. Of the exports, one tenth pass over the western boundaries by land, more than three fifths through the Baltic ports, one fortieth over the White Sea, an eighth over the Black Sea, an hundred and thirtieth over the Caspian, one fourteenth over the Asiatic limits, and an eightieth to the east, south, and west, by internal routes through Moscow.

The following table is made up from the official reports:

	Rub. paper.		
Entire importation of goods from 1814 to 1824	1,646,904,710	=	$354,084,512
Making on a yearly average	164,690,471	=	35,408,451
Entire importation of goods from 1824 to 1834	1,951,844,619	=	419,646,593
Making on a yearly average	195,184,461	=	41,964,659
Increase between the imports of the ten years from 1814 to 1824, and the ten years from 1824 to 1834,	304,939,909	=	65,562,081
Average yearly increase on the same	30,493,990	=	6,556,208

The imports in thirty years, between 1801–3 and 1831–3, had doubled, being on the average taken for 1801–3 about $20,000,000, and in the average taken for 1831–3 about $41,500,000.

The exports of goods between 1814 and 1834 are thus given:

	Rub. pap.		
For the ten years 1814 to 1824	2,181,894,424	=	$469,107,301
Making on a yearly average	218,189,442	=	46,910,730
For the ten years 1824 to 1834	2,307,399,005	=	496,090,786
Making on a yearly average	230,739,900	=	49,609,078
Increase between the exports of the ten years from 1814 to 1824, and the ten years from 1824 to 1834,	125,504,581	=	26,983,484
Average yearly increase on the same	12,550,458	=	2,698,348

The ratio of increase with exports from the commencement of the present century has been the same as with imports, since it has risen within

thirty years from about $20,000,000 to $42,000,000 on a yearly average. The exports, however, have suffered far greater variations than the imports, since the latter is regulated by the government standard, and the former are affected by every vicissitude in the trade or the taste of foreign nations whose dealings are not shaped by so severe a rule. We see that in 1825 the exports had arrived at nearly $48,872,000; but by pursuing the official tables still further, we will find they had retreated in 1827 to $47,354,000, and in 1828 to as low as $40,000,000. Taking a sudden rise, they arrived in 1829 to $44,000,000, and in 1830 to $54,800,000. In the following year they fell back to $49,266,000, and mounted again in 1832 to $52,500,000. The fluctuation of the exports is therefore eight times greater than that of the imports, and extends from 1 to $4,700,000. The increase in the value of the exports between 1824 and 1834 is by no means as great as that of the imports within the same period; which may be ascribed in some measure to the circumstance that the growing demands of domestic industry require a greater supply of foreign raw commodities for manufacture than can be balanced by domestic production alone. The relation between imports and exports with regard to the channel through which they are carried, is the same; since one eighth of the goods that form the subject of the calculations we have been giving, are brought in and out through land, while seven eighths come by sea carriage.

We proceed to consider the extent of the trade in the precious metals, which is separated in the official report from that of the remaining articles of commerce. The following statement completes the tables of the entire imports of Russia from 1814 to 1834.

Importation of Precious Metals.

	Rub. pap.		
For the ten years from 1814 to 1824 . . .	321,969,988	=	$69,223,546
Making on a yearly average	32,196,998	=	6,922,354
For the ten years from 1824 to 1834 . . .	322,136,144	=	69,259,271
Making on a yearly average	32,213,614	=	6,925,927

Exportation of Precious Metals.

	Rub. pap.		
For the ten years from 1814 to 1824 . . .	60,982,229	=	$13,111,179
Making on a yearly average	6,098,222	=	1,311,117
For the ten years from 1824 to 1834 . . .	59,306,701	=	12,750,941
Making on a yearly average	5,930,670	=	1,275,094

The excess, therefore, of the imports of gold and silver over the exports is as follows:

	Rub. pap.		
For the ten years from 1814 to 1824 . . .	260,987,759	=	$56,112,368
For the ten years from 1824 to 1834 . . .	262,829,443	=	56,512,510

If we take into consideration the whole Russian trade, including the precious metals in the sum total, we will find that the balance of exports over imports from 1814 to 1824,

	Rub. pap.		
is equal to	534,089,714	=	$114,829,289
Making on an average for each year . .	53,408,971	=	11,482,928
From 1824 to 1834 the balance was . .	355,554,386	=	77,444,193
Making on an average for each year . .	35,555,438	=	7,744,419

The balance of the exports over the imports of marketable commodities is becoming every year more nearly compensated by the balance of the imports over the exports of gold and silver; though it is worthy of consideration that a large proportion of the precious metals imported consist in the tributes of eastern nations. The Turks alone, between 1824 and 1834, paid on an average $5,000,000 a year to the Russian treasury.*

The foreign commerce of Russia for the single year 1834 is thus reduced from the statement given by Mr. McCulloch. (Com. Dic. II. 294.)

Exports.

	By European Frontier.		*By Asiatic Frontier.*		*Total.*	
	Rub. Pap.	Dollars.	Rub. Pap.	Dollars.	Rub. Pap.	Dollars.
Articles for cons'pt'n,	8,636,951	1,857,949	1,159,366	249,264	9,796,317	2,106,208
" for manufacture,	170,023,836	36,555,125	3,990,250	857,904	174,014,186	37,413,050
" manufactured,	13,901,286	2,988,767	8,407,755	1,807,667	22,309,023	4,796,440
Sundries,	7,264,243	1,551,814	3,938,777	846,837	11,203,020	2,408,649
Gold and Silver,	8,192,488	1,760,377	453,905	97,590	8,646,393	1,858,974
Value per price curr't,	208,018,786	44,724,039	17,950,053	3,859,261	225,968,839	48,583,310
Value per declarat'n,	222,441,648	47,813,964	17,950,053	3,859,261	240,391,701	51,684,216
Average value,	215,230,217	46,274,497	17,950,053	3,859,261	233,180,270	50,133,758

Imports.

	By European Frontier.		*By Asiatic Frontier.*		*Total.*	
	Rub. Pap.	Dollars.	Rub. Pap.	Dollars.	Rub. Pap.	Dollars.
Articles for cons'pt'n,	66,257,313	14,245,540	7,902,731	1,599,097	74,160,044	15,844,637
" for manufacture,	92,937,637	19,981,592	3,187,295	685,317	96,124,932	20,665,909
" manufactured,	26,978,001	5,800,270	5,694,142	1,224,240	32,672,143	7,024,510
Sundries,	6,318,523	1,358,482	5,048,988	1,075,532	11,367,511	2,434,014
Gold and Silver,	18,890,898	4,061,532	1,085,201	223,318	19,976,099	4,384,850
Confiscated Goods,	451,848	97,137	36,277	7,810	488,125	104,947
Value per price curr't,	211,834,220	45,554,553	22,954,634	4,815,414	234,788,854	50,369,967
Excess of Imports over Exports,					8,820,015	1,866,303
Value per declarat'n,	242,464,884	52,129,950	22,954,634	4,815,414	265,419,518	56,945,364
Excess of Imports over Exports,					25,027,817	5,380,991
Average value,	227,149,552	48,837,154	22,954,634	4,815,414	250,140,186	53,652,568
Excess of Imports over Exports,					18,923,916	3,638,622

The number of vessels sailing from the thirty-six Russian harbors, at various periods within the ten years from 1814 to 1824, is reported as 39,623, or on a yearly average, 3,962. In the ten years from 1824 to 1834, it arose to 45,577, or on a yearly average, 4,557; being an average increase of 395 on the preceding ten years. The number of vessels *visiting* the thirty-six harbors between 1814 and 1824, is given as 40,321, or in a yearly average, 4,032; while in the succeeding ten years it amounted to 45,234, being on a yearly average 4,523, or 492 ships more than in the average of the preceding ten years. But the increase, distinct as it is, is far greater in fact than it would appear by the report we have given; since the most of the vessels taken into computation within the ten years from 1824 to 1834, were bound on foreign voyages, with great tonnage, which is far from being the case (as to the tonnage at least) with those of the former period. In 1825, 4,263 vessels entered the Russian harbors, while 4,228 passed out; in 1829, 4,488 entered, and 4,562 passed out; in 1830, 5,809 entered, (of which 3,550 were laden with bal-

* Schubert's Statistict, I. 235-6.

last, and 2,089 with goods,) and 6,128 passed out; in 1831, 5,577 entered, (of which 3,550 were laden with ballast, and 2,287 with goods,) and 5,715 passed out; and in 1832, 5,720 vessels entered, (of which 3,433 were laden with ballast, and 2,287 with goods*,) and 5,721 passed out. While on the one hand, two-fifths only of the vessels entering are laden with goods, and the rest come in ballasted for the purpose of bringing away Russian productions, of the vessels that pass out, on the other hand, only one twentieth are unfreighted, and the remainder are crowded with the commodities which they come to obtain. To the friend of a high tariff, such a condition must seem Arcadian; but it is worthy of remark, as affording a distinct objection to the reasoning by which a tariff is advocated, that in the provinces in whose favor the balance of trade is most strong, who export most and import least, the people are the most starved and the least clothed, and the country itself is most deprived of the muscles of strength and the marrow of comfort.

Of the vessels which we have taken into computation, one third are English, one seventh Russian, one fourteenth Swedish, one fourteenth from the Netherlands, one fifty-one part Russian, one fifteenth Danish, one fifteenth Italian, one twentieth Austrian, one twentieth from Mecklenburg and the Hans Towns, one twentieth Turkish, one fiftieth French, and one hundredth from the United States. There are besides from 2,500 to 3,500 smaller craft in constant employment on the Black Sea, and the Sea of Azof, and from 700 to 850 on the Baltic.

We proceed to examine the extent of the trade which is carried on with Russia by the principal commercial nations of Europe, making use of the average of the years 1827–32, for the basis of our calculations. England draws off one half of the Russian exports to the amount of 115,000,000 *rub. pap.*, ($24,725,000,) and makes up only one third of the imports in return, or about 65,000,000 *rub. pap.* ($14,000,000.) Turkey takes yearly 21,000,000 *rub. pap.*, ($4,500,000,) and returns 12,000,000 *rub. pap.* ($2,370,000.) Prussia receives annually 17,000,000 *rub. pap.*, ($3,655,000,) and returns about 7,000,000 *rub. pap.* ($1,355,000.) Denmark takes yearly 16,600,000 *rub. pap.*, ($3,330,000,) and returns about 4,000,000 *rub. pap.* ($860,000.) Austria both imports and exports 13,000,000 *rub. pap.* ($2,655,000.) The Netherlands receive yearly about 12,000,000 *rub. pap.*, ($2,370,000,) and return 5,500,000 *rub. pap.* ($1,150,000.) France receives yearly 2,000,000 *rub. pap.*, ($430,000,) and returns 12,000,000 *rub. pap.* ($3,370,000.) The Hans Towns receive yearly 28,000,000 *rub. pap.*, ($5,650,000,) and return 7,500,000 *rub. pap.* (1,612,500.) The Italian States receive yearly 10,000,000 *rub. pap.*, ($2,150,000,) and return about 2,500,000 *rub. pap.* ($537,500.)

The trade between the United States and Russia would seem, on the principle that wherever the amount of a country's imports exceeds its exports, the balance is against it, to be the most injurious to the latter state of any in which it is engaged. The American imports into the Russian ports, on the average taken of the five years 1827–32, exceed 20,000,000 *rub. pap.*, ($4,300,000,) while the corresponding exports reach only to 8,000,000 *rub. pap.* ($1,720,000.) Both parties, however, appear to be

* We use the word *goods* in its widest sense, as a translation of the German "*Waaren.*" It is taken to express all marketable commodities whatever, with the exception of the precious metals.

contented with their position; Russia, because she receives at the cheapest market rates raw commodities indispensable to her manufactories, and the United States, because they obtain in a less degree, though not at less advantage, manufactures which a country less varied in its climate and peculiar in its physical characteristics would be unable to afford them.*

Russia has for some time taken up a large portion of the carrying trade between the European and the Asiatic commercial nations, and her imports, in consequence, from her eastern neighbors, have arisen to an amount which her individual consumption would be unable to explain. Her exports into the Asiatic continent, in the average between 1814–34, reached to about a fourteenth part of her entire exportation, being equal to 19,000,000 *rub. pap.* ($4,200,000.) In 1829, they amounted to 22,500,000 *rub. pap.*; they fell in the next year to 17,800,000 *rub. pap.*, remained both for 1831–32 at about 18,500,000 *rup. pap.*, and arose in 1833 to 17,949,185 *rub. pap.*, ($3,849,075,) of which 7,333,151 *rub. pap.* were directed to China, 4,625,338 *rub. pap.* to the Kirghises, and 2,960,580 *rub. pap.* to Persia. The imports from Asia to the Russian empire amounted in 1827 to 24,500,000 *rub. pap.*, in 1828 to 26,200,000 *rub. pap.*, in 1829–30 to 25,000,000 each, in 1831–32, with a little variation, to 22,000,000, and in 1833 to 23,113,701 *rub. pap.*, being on a yearly average, 24,000,000 *rub. pap.*, or $5,100,000 of the entire imports; one-third (8,000,000 *rub. pap.*) consists of articles of consumption, especially tea; about 9,000,000 *rub. pap.* for manufactures of various kinds; about 5,000,000 for raw stuffs, and nearly 1,000,000 for gold and silver. Of the whole imports, one third come from China, and about one-sixth from the Kirghises.*

Notwithstanding the small amount of the entire imports of the empire, when we consider its gigantic size, and its large population, there is no nation of which we can keep an accurate account, on which the taxes on importations are so great. The ancient czars drew their feudal tributes from the food and the clothing which their subjects imported from foreign countries on account of the poverty of their own; and so strong and so

---

* The following table exhibits the extent of the United States trade with Russia, between 1821 and 1838.

	Imports.	Exports.		Imports.	Exports.
1821	$1,852,199	$628,894	1830	$1,621,899	$416,574
1822	3,307,328	529,081	1831	1,608,328	462,766
1823	2,258,777	648,734	1832	3,251,852	582,682
1824	2,209,663	231,981	1833	2,772,550	703,805
1825	2,067,110	287,401	1834	2,595,840	330,694
1826	2,617,169	174,648	1835	2,395,245	585,447
1827	2,086,077	382,244	1836	2,778,554	911,013
1828	2,788,362	450,495	1837	2,816,116	1,306,732
1829	2,218,995	386,226	1838	1,898,289	854,771

It will be seen that there is considerable discrepancy between the statements thus given, and those which we have already cited. The table in this note is taken from the London Bankers' Circular, given in Hazard's Register, iii. 183. That in the text, being deduced from the official report of the Russian government, may be thought most worthy of credit.

* It is said by Mr. McCulloch, that the iron and furs of Siberia, and the teas of China, occupy three years on their passage to St. Petersburgh.

minute are the meshes of the net which the modern emperors have stretched across their harbors, that of most of the articles that slip through, the fairest part of the substance is taken. From the Dardanelles, the gulf of Finland, and the Volga, through whose huge channels a cubic mile of water has been said daily to pass—from the vast aqueducts which open on the Caspian, the Black Sea, and the Baltic, to the slightest rivulet which is swallowed in the sands of Astrachan, or freezes on the rocks of Lapland—there is not a stream whose waters are not stilled, and whose freight intercepted, by the flood-gates which are to stop short the truant merchandise. One third of the value of the entire importation, and nearly one fifth of importation and exportation together, are detained before the rest can pass through; while in the remaining nations of Europe, which can certainly not be called too lax in collecting so important a branch of their revenue, the average is only one to six, and with both imports and exports, one to eleven. The taxes from duties, during the two periods of ten years which we have already several times made use of, are thus reported.

	Rub. Pap.		
In 1814–24	396,126,285	about	$85,497,258
In a yearly average . . .	39,612,628	"	8,549,725
In 1824–34	673,339,401	"	145,329,086
In a yearly average	67,333,940	"	14,532,908

Being an increase in the last ten years over the first of 277,213,166 *rub. pap.*, ($59,831,828;) or in a yearly average, 27,721,316 *rub. pap.*, ($5,983,182.)

It may easily be imagined that under a system of duties so immense, smuggling is both lucrative and general. Over a frontier so extended as that of the entire empire, there must be points which are unwatched; while in the attempt to watch them, a sum of money is expended which requires a fresh revenue to support it. Between 1814 and 1824, there were goods confiscated to the amount of 3,353,665 *rub pap.;* and in the following ten years the amount rose to 6,243,668 *rub. pap.;* or about $1,348,299. "We must conclude therefrom," says Schubert after reviewing the facts we have cited, "not that smuggling is diminished, on account of the greater success of the guard that is held over it, but that on the contrary it has vastly increased, and the increase of the smuggled goods that are confiscated may be taken as indication of the rapid strides which in twenty years it has made."—Schubert's Statistik, I., 242.

Raw Sugar, among the articles of importation, stands the highest. The quantity imported was valued in 1827 at 28,800,000 *rub. pap.;* in 1828 at 33,000,000; in 1829 at 38,000,000; in 1830 at 33,000,000; in 1831 at 24,600,000; and consequently, at a yearly average of 32,000,000 *rub. pap.*, ($6,880,000,) or about one sixth of all the imports together. Its consumption has been multiplied sixty times since the beginning of the present century.

Coffee, of which a quantity is annually imported equal to about one sixth of that of sugar, was at its highest pitch in 1825, at 6,769,147 *rub. pap.*, but fell on the average taken between 1827 and 1834, to 5,000,000 *rub. pap.* in value.

Raw Cotton, in its natural shape, or as yarn, whether raw or spun, ranks next to sugar in the list, and stands as nearly one sixth of the sum

of the entire importations. The value of the amount received between 1827 and 1832, averages at 31,000,000 *rub. pap.*, and was at its highest pitch in 1829, when it was imported to the value of 38,500,000 *rub. pap.* Since 1805, it has increased 5,000 per cent. As the domestic manufacture of cotton has improved, the cotton goods imported have diminished in quantity one half.

Coloring stuffs, of which indigo constitutes a third, were imported between 1827 and 1832, at an average worth of 20,000,000 *rub. pap.*, and ranks at about one tenth of the entire importation.

The average of *silk goods* imported in the last 20 years, is rated at 9,000,000 *rub. pap.*

The importation of *woollen goods* has considerably waned since 1820, since for that year its value was equal to 22,300,000 *rub. pap.*; and in the average between 1827 and 1832 at about 7,500,000 *rub. pap.*

Wine has remained constant since 1825 at 11,000,000 *rub. pap.*, of which all, with but slight exceptions, is French, and one fourth is champagne.

The yearly importation of *Tea*, may be taken between 1825 and 1835 at an average of 5,600,000 *rub. pap.*

Tobacco, since 1825, is estimated at 2,750,000 *rub.* in yearly value, and *Lead* at 1,500,000.

The principal articles of exportation are raw commodities which in Russia alone are produced to excellence. *Flax* and *Hemp*, in their manufactured shape, or in the shape of seed, expressed oil, or made up into coarse stuffs, sail-cloth, or ropes, constitute one third of Russian exports, and form in themselves goods which are indispensable to every commercial nation. The amount in which they are exported, when taken at an average between 1825 and 1835, reaches 80,000,000 *rub. pap.*, ($17,200,000;) of which hemp-seed and flax-seed are rated at 13,500,000 *rub. pap.*, oil drawn from both the two commodities at 3,000,000 *rub. pap.*, raw hemp at 23,000,000 *rub. pap.*, raw flax at 26,000,000 *rub. pap.*, cordage and tackling of various kinds as manufactured at 3,000,000 *rub. pap.*, and sail-cloth and coarse linen at 11,500,000 *rub. pap.*

Tallow stands next on the list of exports, which was exported on the yearly average between 1827 and 1832 to the amount of 40,500,000 *rub. pap.* ($8,738,100;) being one sixth of the whole export trade.

Corn and Meal, to the value of 37,500,000 *rub. pap.*, ($8,080,450,) was exported on the yearly average between 1825 and 1832; ranking therefore but little behind tallow on the scale. But the corn trade varies exceedingly both with the home supply and the foreign demand, and as no limit can be set to the fluctuations of crops in a country whose climate is so various as that of Russia herself, the amount of corn and meal in the market has been generally found to be most abundant when it was least wanted, and when the scarcity in other nations was greatest, to be the least plenty.

The exportation of *Bristles* has doubled since the commencement of the present century. It was rated on the average taken between 1827 and 1832, at about 4,300,000 *rub. pap.* in value. *Hides* and *Leather* within the same period average at 7,000,000 *rub. pap.* yearly.

The harbors of the Baltic, though a century ago they were known for little more than their vast extent and their great capabilities, have become since the founding of St. Petersburgh the principal avenues to the Russian

empire. We shall be obliged to limit our observations on their character, as well as on that of their more ancient though less flourishing rivals on the Black Sea and the Sea of Asoph, to the consideration of that of the capital itself, which has risen to a rank so permanent and so lofty, that it will require a revolution to unseat it. Moscow is still the head of the ancient empire. In her monstrous temples may be seen the monuments of the old dynasty of Russia, and in the barbarous statues clad in armor that clings to the frame as if it had been forged around it, remain the last memorials of those mighty chieftains who shook Rome under Augustus with their blows, and overwhelmed Rome under the Constantines. Like the shell of the chrysalis, shed when its inhabitant starts to a sphere of existence more exalted, they were dropped on the spot where their gigantic masters, after a sway of centuries in those inhospitable regions which they chose for their final abode, vanished at last from the earth. Between Ivan the barbaric and Peter the Great, there was but a momentary transition; and though it took the young czar years of toil and abstinence to remould the great empire that fell in his hands, his accession itself made the turning point between barbarity and civilization in the east of Europe. The tide has but commenced to roll back. It was ages in arriving to its ebb, and it may be as long before its course is completed. St. Petersburgh, however, we may take as the capital of the new empire; and in its commercial strength, as well as its courtly splendor,—in its natural as well as its conventional advantages,—it is suitable to be the centre on which shall revolve the system of the vastest nation on earth.

St. Petersburgh, according to the estimate of 1835, possesses forty-six great importing and exporting houses, of whom three act as bankers, one hundred and forty-one commercial establishments of the first scale, one hundred and sixty-one of the second, and nine hundred and eighty of the third. The number of ships passing in and out of the harbor of Kronstadt in the six years between 1820 and 1826, was 6,600, or 1,100 on a yearly average, and with cargoes of 130,000,000 *rub.* imports, and from 95 to 105,000,000 *rub.* exports. In the eight years from 1826 to 1833, the yearly average of ships entering and leaving reached 1,289, of which over one half were English, one fifteenth Prussian, one fifteenth Swedish and Norwegian, one twentieth Hanseatic, one twentieth from the United States, one twenty-fourth Russian, one twenty-fourth French, one twenty-fourth Danish, one twenty-fourth belonging to Mecklenburg, Hanover, and Oldenburg, one thirtieth from the Netherlands, with occasionally a very few from Spain and Portugal. Of the entering ships, six sevenths are usually fully laden, and one seventh in ballast; of the ships sailing out, but very few are laden with ballast alone. The imports into St. Petersburgh in the eight years of 1826–33, are averaged yearly at 150,000,000 *rub. pap.*, or about $32,225,000; the exports during the same period, at 111,500,000 *rub. pap.*, or about $23,972,500.

It will be seen by an examination of the statements which it has been our object in the present paper to exhibit, that the commerce of Russia has advanced during the last fifty years, in strides which are unexampled in the history of Europe. The ten league boots in which our own country has marched, have been rivalled by those which are worn by our great European ally. Large tracts of land the most fertile have in both instances been rescued daily from the deserts which before had been the hunting-grounds of savages, and mines have been opened and productions raised

which are more rich and more useful than those which, in earlier ages, had formed the entire support of the European commercial nations. From the sleep of barbarism, Russia has been in the last century collecting herself; and though her strength is yet far from being perfect, and her faculties are numb from the torpor in which they so long have lain, we can estimate her future might by the grandeur of her proportions, and the variety of her resources. We hope that the period will soon arrive, when she will cast off the swaddling bands with which the cupidity of her rulers have enclosed her. The ancient czars, and in some degree the modern emperors, have looked upon their heritage too much in the light of a vast speculation, from which they were to reap whatever could be reaped while the sun shone; and as in older times the most prodigal waste would be committed, to the dispersion of the heir in remainder, in order to secure some slight temporary profit to the tenant in possession, so in our own times, the most oppressive duties have been laid on foreign commerce, without regard to the blighting consequences which would ensue, for the purpose of pensioning a favorite or carrying on a war. The business of trade has been lifted from the hands of its legitimate guardians—from the hands of merchants who have spent the first half of their life in severe apprenticeship—and has been placed in the crowded fangs of a government whose duties are already too heavy for it to compass, but whose avarice for authority increases in the degree that the capacity for its exercise diminishes. It is not the fault of the Russian emperor, that his subjects on the frontier are divided into two great, though disproportionate classes; and that while one tenth of them are employed in the enforcement of revenue laws, the remaining nine tenths are employed in violating them. It is not his fault, we should say, were we to concede that his commercial policy is just; for so extended is his heritage, and so scarce its inhabitants, that it would require the marshalling of a standing army of one half his entire population to prevent the entry of a chest of tea or a barrel of herring. We might stop to consider, with so fruitful an illustration before us, the danger and the inefficiency of that high pressure system which places in the hands of the civil administration the regulation of the affairs of trade. Russia has been struggling, since she has ranked among independent nations, to develop more strongly her gigantic resources. Her laborers, servile and goaded as they are, have produced, year after year, crops of their peculiar, though inestimable commodities, sufficient to buy them in return the comforts which are necessary to lift them from their degradation; but her government has stood by and told them—you may till and tire, you may produce and sell, you may export to the full limit of your labor, but when the returning produce comes to port, when the goods which you have labored to buy are brought back to you in payment of the goods which you have produced, they shall be met with taxes so great, as to stop their further progress; or, if not actually to prevent their entrance into the empire, to prevent their sale to those by whose exertions alone they are imported. Such a policy has taken the reward from industry, and has, therefore, destroyed its necessity. It has weakened the faculties of production, in the proportion that it has cut off the food by which they are nourished. But we may go further, and maintain, that through the restrictive system, carried out in its furthest ramifications—through the system of governmental interference into the domestic concerns of society, both collectively and singly—an

engine of despotism has been engendered, so complete, that till a revolution shall take place, which shall bring the separated classes again into juxtaposition, and restore the general circulation of the state, its resources must remain shackled, and its limbs incapable of complete and healthy exertion. We conclude by the consideration of,

V. *The commercial qualifications of the Russian people.*

By a decree of the Empress Catherine, dated 24th April, 1785, and confirmed and made perpetual on the 2d April, 1801, by the Emperor Alexander, the entire mass of the inhabitants of the cities was set apart from the nobility on the one side, and the peasantry on the other, by an act of incorporation which endowed it with peculiar privileges, and placed it under peculiar restraints. Six distinct divisions were instituted, in which the inhabitants of the empire, exclusive of the nobility and the peasantry, were thrown. We place them in the order in which they are laid down by Schubert. (Allg. Sta. i. 176.) The first class contains the *citizens proper*, or citizens who possess a house or a freehold in land within the walls of a city. To the second belong the *Gilden Burgers*, who are required to possess, distinct from their inherited estate or their trading assets, a certain actual capital, liable to taxation. To be numbered in the first *Gild* or subdivision in which the second class is divided, it is necessary to possess a capital of 50,000 *rub. pap.* (about $10,750.) For the second *Gild*, 20,000 *rub. pap.* ($4,300;) and for the third *Gild*, 8,000 *rub. pap.* ($1,720.) Foreigners who are not enrolled as permanent citizens of the Russian empire, cannot be received within the *Gilden*, except by a special act of the members of the senate of the *Gild* which he wishes to enter, and even then he is forced to pay as a fee for admission, a sum equal to the capital necessary for the first *Gild*. To pass from a higher *Gild* to a lower, is only admissible in December, though it is allowable to rise upwards in the scale at any period throughout the year, provided that the applicant had certified to the sufficiency of his capital on the January preceding.

To the third class belong the members of the various domestic trades, arranged in their corporate capacity. The masters and apprentices of each trade are required to enroll themselves in the book which contains the names of their fellow craftsmen; and in accordance with the spirit which has been shown by the most of the emperors for the encouragement of domestic industry, foreigners are admitted without any other requisitions than those which insure their proficiency in their art.

The fourth class contains foreigners not included under the preceding heads, who at the time, on account of business, are making a sojourn in the state.

In the fifth class are numbered the *Namhaften Burger*, or citizens of consideration. It comprises the ordinary officers of state, together with artists and scholars who have passed successfully through their academical probation, and have obtained the credentials of their individual proficiency.

The sixth class is composed of the *Rasnotschinzu*, or all such as remain from the general mass after the preceding divisions are extracted. It comprises, therefore, all who are not entered into the five preceding classes, and who support themselves through day-labor, or employments which are not therein specified. They have the privilege, if privilege it may be called, of returning to the state of semi-slavery in which the peasantry are thrown, and of overleaping thereby, barriers which are in other

respects insurmountable. But whatever changes they may undergo, or whatever may be the vicissitudes of condition their descendants may experience, they are allowed to dispose without shackle of their property as far as it is situated within the bounds of a city, or to bequeath it at their death to their children.

It must be remembered that the whole population of Russia is ranked into three cardinal divisions. The nobles are endowed with official prerogatives more extensive than their brethren of the older European monarchies, though at the same time their personal freedom is more limited; the citizens or freeholders are divided into the classes whose condition we are at present discussing; the slaves, or peasantry,—for under the diseased system which we are considering the terms have become synonymous,—constitute by far the greater part of the population, and are reduced to a state of degradation which we think we may be safe in affirming, is unexampled in the records of modern times for its extent and its completeness.

It is by a reference to the condition of the servile classes, that the privileges of the citizens or freeholders can be best estimated. The slaves are regarded very much in the light of fixtures appendant to the land with which they are sold, or at best, as chattels that may be separated from it for a time for the convenience of trade: the citizens are allowed the right of locomotion within a limited extent, and are enabled to hold and to convey property. They can found factories and build workshops without special permission from their overseers; and from the usual restrictions which are laid on the purchase of slaves they are exempted. The members of the *Gilden* are singled out from their fellow *Burgers*, insomuch that they are freed from the operations of the arbitrary taxes which it is the privilege of the emperor to lay down, and they are subjected in their stead to a fixed yearly tax of one per cent on the property which they have been assessed to possess. They can enter into contracts with the government itself, are chartered to supply the crown with provisions of all kinds, and are enabled to sell, with the exception of brandy and salt, whatever commodities may be brought within the market.

On the members of the first Gild, who are required from its constitution to possess at least 30,000 *rubs.*, favors the most peculiar and exclusive are heaped. They are divided into two parts, of which the members of the first are called the *Merchants of the first class*, those of the second, simply *Fellows of the First Gild.* The merchants of the first class have the monopoly of the trade, both with the interior and with foreign countries; they can drive a coach and four, which seems to be looked upon as a conventional prerogative of the most flattering order; they can carry a sword; and the heads of their families are entitled to appear in court. The fellows of the first Gild, on the other hand, are allowed to participate in the business of banking; can enter besides into the trade of the city in which they live, and can establish workshops, manufactories, and forges. They can possess ships as well as smaller craft, and have the privilege of sending their goods to the various cities and courts of the empire. They enjoy, also, the honor of driving in a calash with two horses, and of being exempt from capital punishment, except in case of high treason.

The merchants of the second Gild are allowed to carry on every branch of the interior trade, to possess boats limited to river navigation, and to transport their goods by water and by land to cities and fairs under the

engine of despotism has been engendered, so complete, that till a revolution shall take place, which shall bring the separated classes again into juxtaposition, and restore the general circulation of the state, its resources must remain shackled, and its limbs incapable of complete and healthy exertion. We conclude by the consideration of,

V. *The commercial qualifications of the Russian people.*

By a decree of the Empress Catherine, dated 24th April, 1785, and confirmed and made perpetual on the 2d April, 1801, by the Emperor Alexander, the entire mass of the inhabitants of the cities was set apart from the nobility on the one side, and the peasantry on the other, by an act of incorporation which endowed it with peculiar privileges, and placed it under peculiar restraints. Six distinct divisions were instituted, in which the inhabitants of the empire, exclusive of the nobility and the peasantry, were thrown. We place them in the order in which they are laid down by Schubert. (Allg. Sta. i. 176.) The first class contains the *citizens proper*, or citizens who possess a house or a freehold in land within the walls of a city. To the second belong the *Gilden Burgers*, who are required to possess, distinct from their inherited estate or their trading assets, a certain actual capital, liable to taxation. To be numbered in the first *Gild* or subdivision in which the second class is divided, it is necessary to possess a capital of 50,000 *rub. pap.* (about $10,750.) For the second *Gild*, 20,000 *rub. pap.* ($4,300;) and for the third *Gild*, 8,000 *rub. pap.* ($1,720.) Foreigners who are not enrolled as permanent citizens of the Russian empire, cannot be received within the *Gilden*, except by a special act of the members of the senate of the *Gild* which he wishes to enter, and even then he is forced to pay as a fee for admission, a sum equal to the capital necessary for the first *Gild*. To pass from a higher *Gild* to a lower, is only admissible in December, though it is allowable to rise upwards in the scale at any period throughout the year, provided that the applicant had certified to the sufficiency of his capital on the January preceding.

To the third class belong the members of the various domestic trades, arranged in their corporate capacity. The masters and apprentices of each trade are required to enroll themselves in the book which contains the names of their fellow craftsmen; and in accordance with the spirit which has been shown by the most of the emperors for the encouragement of domestic industry, foreigners are admitted without any other requisitions than those which insure their proficiency in their art.

The fourth class contains foreigners not included under the preceding heads, who at the time, on account of business, are making a sojourn in the state.

In the fifth class are numbered the *Namhaften Burger*, or citizens of consideration. It comprises the ordinary officers of state, together with artists and scholars who have passed successfully through their academical probation, and have obtained the credentials of their individual proficiency.

The sixth class is composed of the *Rasnotschinzu*, or all such as remain from the general mass after the preceding divisions are extracted. It comprises, therefore, all who are not entered into the five preceding classes, and who support themselves through day-labor, or employments which are not therein specified. They have the privilege, if privilege it may be called, of returning to the state of semi-slavery in which the peasantry are thrown, and of overleaping thereby, barriers which are in other

respects insurmountable. But whatever changes they may undergo, or whatever may be the vicissitudes of condition their descendants may experience, they are allowed to dispose without shackle of their property as far as it is situated within the bounds of a city, or to bequeath it at their death to their children.

It must be remembered that the whole population of Russia is ranked into three cardinal divisions. The nobles are endowed with official prerogatives more extensive than their brethren of the older European monarchies, though at the same time their personal freedom is more limited; the citizens or freeholders are divided into the classes whose condition we are at present discussing; the slaves, or peasantry,—for under the diseased system which we are considering the terms have become synonymous,—constitute by far the greater part of the population, and are reduced to a state of degradation which we think we may be safe in affirming, is unexampled in the records of modern times for its extent and its completeness.

It is by a reference to the condition of the servile classes, that the privileges of the citizens or freeholders can be best estimated. The slaves are regarded very much in the light of fixtures appendant to the land with which they are sold, or at best, as chattels that may be separated from it for a time for the convenience of trade: the citizens are allowed the right of locomotion within a limited extent, and are enabled to hold and to convey property. They can found factories and build workshops without special permission from their overseers; and from the usual restrictions which are laid on the purchase of slaves they are exempted. The members of the *Gilden* are singled out from their fellow *Burgers*, insomuch that they are freed from the operations of the arbitrary taxes which it is the privilege of the emperor to lay down, and they are subjected in their stead to a fixed yearly tax of one per cent on the property which they have been assessed to possess. They can enter into contracts with the government itself, are chartered to supply the crown with provisions of all kinds, and are enabled to sell, with the exception of brandy and salt, whatever commodities may be brought within the market.

On the members of the first Gild, who are required from its constitution to possess at least 30,000 *rubs.*, favors the most peculiar and exclusive are heaped. They are divided into two parts, of which the members of the first are called the *Merchants of the first class*, those of the second, simply *Fellows of the First Gild.* The merchants of the first class have the monopoly of the trade, both with the interior and with foreign countries; they can drive a coach and four, which seems to be looked upon as a conventional prerogative of the most flattering order; they can carry a sword; and the heads of their families are entitled to appear in court. The fellows of the first Gild, on the other hand, are allowed to participate in the business of banking; can enter besides into the trade of the city in which they live, and can establish workshops, manufactories, and forges. They can possess ships as well as smaller craft, and have the privilege of sending their goods to the various cities and courts of the empire. They enjoy, also, the honor of driving in a calash with two horses, and of being exempt from capital punishment, except in case of high treason.

The merchants of the second Gild are allowed to carry on every branch of the interior trade, to possess boats limited to river navigation, and to transport their goods by water and by land to cities and fairs under the

usual prescribed limitations. They are precluded from entering into the foreign trade, and their capacity of striking bargains with strangers is limited to domestic agricultural produce and raw stuffs. By an ukase of the 16th of May, 1798, they were allowed to employ body slaves to work in manufactories and mines, under condition, that the slaves themselves should henceforth be considered as appendant to the works in which they were introduced, unless the mineral or the raw material they were to labor on should be exhausted.

The merchants of the third Gild are privileged to enter into the retail business both in city and in country, and to peddle in the wares with which their trade is concerned at all places within the province in which they dwell. They can possess workshops and manufactories, can build or buy boats of the smallest description, can hold taverns or smaller establishments for public accommodation, and can enter into contracts with the crown which do not exceed the sum of 12,000 *rub*. Their official dignity is measured by the fact that their equipage is limited to one horse.

We do not feel it necessary to enter further into the labyrinth of Russian mercantile subdivisions. There is net within net, and mesh within mesh, and from the great importer who drives four Arabians to the pedler whose barrow is horseless, there is a grade into which every business man is thrown, and a grade from which the most ambitious cannot emancipate himself. In the solitary recesses of his distant cell, the imperial spider sits and weaves meshes still more fine and still more subtle; and the merchant who once finds himself caught within their rings, feels that the sphere of his future existence is limited by the narrow zone that is thus described. Sectional pride, the most dishumanizing feeling that can reign in the human breast, is fomented by the supreme authority as the passion that is most conducive to his safety; for he knows that when the jealousy and the suspicion of each of the infinitesimal fractions into which his subjects are divided, are directed against each other exclusively, he may sit secure on a throne which is built on their collective degradation. Trading, the ladder by which the Yankee boy climbs till he reaches the regions of wealth and power, has been stripped of its ascending bars, and presents to the young Russian apprentice the spectacle of a feat which is almost Herculian. He may mount, but he must mount without the usual assistance by which mounting is made practicable; and though by some fairy helps he should pluck, during his wanderings, seed which may produce bean-stalks as gigantic as those by which the hero of the nursery tale arrived at the elysium of his hopes, he must content himself, when he reaches it, to be looked upon by its rightful inhabitants as an interloper.

By a report made at the middle of the reign of Catherine II., in 1782, it appears that there were at the time 107,408 merchants and pedlers, together with 293,793 members of the class of citizens or freeholders, who could not be ranked with the two foregoing heads. Eleven years later, (1793) there were 127,856 merchants, and 428,380 of the remaining orders of citizens; in 1810, the total amount had risen to 621,399, and in 1816, to 900,000. In 1829, the number of the citizens amounted to 1,000,000; of whom 36 were merchants of the first Gild, 1,368 merchants of the second Gild, 24,629 of the third Gild, and 47 foreign merchants. We can, therefore, by estimating 5 heads to each family, rate the entire number of the citizen orders at 4,500,000, or about one twelfth of the population of the empire.

It would be beyond our province to enter more largely into the condition of the various ingredients of Russian society. We might say, however, that slavery has been incorporated in it, in a measure which is unequalled both for its comparative amount and for its actual strength. The number of body slaves amounts to 21,000,000, and it is said by Schubert that the number of slaves altogether constitutes six sevenths of the population of the empire. They have been placed there by the actual interposition of the supreme authority; they are received into the texture of society, by the continued exertions of those by whom society is governed; and without, therefore, the justification which may be afforded from the fact that exists with us, that they are the remnant of a race who were transplanted among us by the men of distant generations, who brought them here without our consent, and kept them among us till they became necessary to the cultivation of the soil. The Russian slaves spring from the same family as the masters who rule them, and have been reduced to the slavery in which they now stand by those who are making use, in order to clinch it, of whatever means their temporal authority may give. The slave who tills, and the sovereign who lounges, are branches of the same stem; and though emancipation could this moment be effected without the danger of a servile war, though none of those violent antipathies of blood and color are raging which in other circumstances might be recognised, emancipation is opposed with all the coldness which a heart of stone can give, and delayed by all the vigor which is wielded by an arm of steel.

It was not, however, our purpose to show that unfortunate as may be the social evils under which as a country we labor, they are by no means so extended nor so flagrant as those which are at present in existence within the limits of the European continent. Our object was to exhibit in its strongest bearings the oppressions which are worked by a system of commercial restrictions, which, from the theory on which it is built, is of all examples the most perfect. One great axiom, if an absurdity can be called an axiom, was set out with by the founder of the Russian empire. A country that exports more than it imports has the balance of trade in its favor; and a country that has the balance of trade in its favor is on the high road to prosperity. A man who has a field full of a drug of which he can himself consume a trifling quantity, is certainly right in getting rid of as much as he can with convenience; but if he should persist in refusing a proper exchange for his commodity, and should determine to give it away scot free, he is impoverishing himself, instead of adding to his riches. It has been the aim of the Russian government to force out of the empire as much as could possibly be so disposed of, and to prevent the entrance of any thing in return but specie and the precious metals. Valves were stretched over the mouth of each port, which open very readily when the stream was outward, but when the tide ran up, close their lips with a tenacity which nothing but a golden cargo can loosen. It is forgotten that specie, though admirably calculated for a circulating medium, is intrinsically impotent as a source of wealth, and that a nation, as well as a man, may starve in the midst of gold, if it is destitute of ordinary nourishment. A population so vast and so diversified, while it is capable of raising in a great degree the commodities which thrive in the climate over which it is spread, or spring up in the soil which is allotted to it, finds that of the other articles which are necessary to the comfort of life it can raise but few, and those few but with great toil and with great expenditure. Its

primary object is to supply itself with the articles of which it is most in want. Its secondary object is to rid itself of those of which it has no necessity. But by some strange misconception of the character of trade, while in such cases a high tax is laid on the foreign commodities that are thus required, the government makes use of its entire official strength to export, without getting any thing in return but gold and silver, not only the most unnecessary, but often the most valuable, of their domestic productions.

Such has been the policy of Russia since her entry upon the catalogue of commercial nations. Certain commodities, peculiar in their best condition to her soil, and useful, though not indispensable to other nations, she possesses in abundance, and she certainly cannot be accused of a desire to keep them to herself. On the contrary, she has shown a lively and consistent determination to force hogs' bristles, hides, ropes, manufactured leather, and tallow, upon whomsoever could come within her limits; though with the condition that specie, no matter how low it may be, should be paid for them, instead of articles of which she is infinitely more in need, no matter what may be their price. But the nations with whom she contracts, having but a certain amount of the precious metals, are obliged to check their demands after a little while, and turn the proffered commodities from their doors. On the basis of exchange they were willing to meet, but they refuse to drain their dominions of an article which, though it is of no intrinsic value, they possess only to a limited extent, and have chosen it for that very reason as a standard of domestic circulation. The consequence is, that the sale of Russian productions is but a fraction of what it would be were the protective duties on foreign goods removed, while the Russian people themselves are debarred from the enjoyment of those immense advantages which unrestrained commerce could give them.

There is no doubt that Russia, in spite of the pressure of her tariff, has been progressing rapidly in her course as a commercial nation. The increase in the sale of many of her standard productions has increased tenfold in the last fifty years, and in very few cases alone has she retrograded. But it must be remembered that she has sprung within that period from a state of semi-barbarity, and that half a century more backwards would place her among the Goths and Vandals of the north. Her strength was great but ungainly; it was as unlimited then as it is now; and it is in the method of making use of it alone that she has improved. We cannot, therefore, place her on a par with nations who were lead forth from the nursery and drawn into the bustle of life before their muscles were formed or their growth completed. She took her place among nations with an arm that was qualified to compete with those of any around her; she stepped out from her cradle in the prime of her savage strength; and though, like the Orson of the woods, her motion was ungainly, and her might often spent in vain, she found in the gentle teachings of the spirit of commerce that wooed her, a code that before long had chastened her exertions, and placed the discordant forces which she brought to bear, in a resultant in which they would be more potent.

Such was the cause of the first rapid start that was taken by the Russian empire. Her sails were spread to court the breeze when the eastern waters were first ruffled by its progress. For many a weary day her mariners had lain listlessly in the idle sun, or had dissipated their strength in rude pastimes. But at once, there started up by the helmsman's stand

a pilot who could guide the rudder over the boundless waste in which the ship was thrown, and in a moment she was careering along the seas in the fulness of her complete equipment. It was not until her sails were lowered and her rudder turned that her course was impeded, and the progress checked which she was making to the highest station among European nations.

We believe the time will come when the shackles of commercial restriction will be removed, and when mankind will be left free to enjoy the provisions which, under every clime, Providence has spread before them. Wealth consists in an enjoyment of the comforts of life and a participation in its luxuries, and we may look forward to an epoch when those narrow barriers will be disregarded which had been laid in the way of a communication among the nations of the earth as free as that between the individuals of a nation. In such an era, though from the entire equality of station, and the reciprocity of obligation, it will be difficult for one state to maintain an actual superiority over others, we can imagine that those great regions in the northeast of Europe and the north of Asia, will be brought to a degree of usefulness that will raise them to their just importance in the economy to which they have so long been a drag. We are beginning as a people to learn that to pave the way for so great a consummation becomes our own duty as well as the duty of our neighbors, and that by the stand which as a free nation we are bound to take, we may give to those whose constitution is more defective or whose opportunities are less complete, courage to enter upon a course which will lead to the free diffusion of blessings which by general consent alone we will be able to realize.

Art. II.—COINAGE OF THE PRECIOUS METALS.

The invention of money, in its simplest, rudest form, is involved in considerable obscurity. Personal property, as represented by any metallic device, is ascribed to Cain, the son of Adam, but on exceedingly doubtful authority. Josephus has the credit of this hypothesis. But Abraham, who paid 400 shekels for a burying place for Sarah, his wife, is the oldest authentic record of a transaction in which a metal represented the value of property—"And Abraham stood up from before the Lord and spake unto the sons of Heth, saying—That he may give me the cave of Machpelah, which he hath, which is in the end of his field, for as much money as it is worth," &c. "And Ephron answered Abraham, saying unto him, My lord, hearken unto me: the land is worth 400 shekels of silver. And Abraham hearkened unto Ephron, and Abraham weighed to Ephron the silver which he had named in the audience of the sons of Heth,—four hundred shekels of silver, current money with the merchant."

Although this chapter of Genesis is the oldest of which there is any knowledge extent, in which money is mentioned, we are irresistibly led to acknowledge the fact, that Abraham as well as the Canaanites, the original inhabitants of the country, with whom the bargain was made, entertained the same views that we do in relation to the value of it. And it also clearly appears that the business of the merchant, the regular traffic of buying and selling, was as well understood in all its multiplied details,

as at the present day; for it is positively declared that he "*weighed* 400 *shekels of silver, current money with the merchant.*" It moreover presupposes its universal diffusion amongst the nations of that early age as a representative of property,—even long before the birth of the patriarch. The same ancient process of weighing money, characteristic of the age of Abraham, is still customary in Asia, and even in all banking houses of reputation throughout the world. The ancient Greeks were of the opinion that money was invented by Hermodice, the wife of Midas, king of Phrygia, who is fabled to have had the power of turning every thing into gold which he might touch. On the other hand, the Latins ascribed the invention to Janus, one of their imaginary kings.

We are led to the conclusion, that the simple exchange of one article for another, for which an individual had a strong desire, was practised, notwithstanding the reference which has been made to money. Homer, who probably lived between the ninth and tenth century before our Saviour, says that the golden armor of Glaucus was valued at a 100 oxen: and another set, the property of Diomedes, was worth only ten oxen.

The great inconvenience arising from that sort of traffic, however, in time, as men were multiplied, and their wants became more numerous, must have been felt to be particularly burdensome and inconvenient: there was no way in which a person could concentrate his property to a transportable form.

It seems as though by a general consent the primitive inhabitants of Asia, when the rights of individuals to property of any kind were recognised, willingly substituted something which would represent it. Convenience rendered it necessary that the substitute should be portable, or the object would have been wholly defeated.

As gold and silver were the scarcest of the metals accessible to man, and the least liable to changes from those influences which, experience unquestionably taught nomadic tribes, affected the more common sort, a value appears to have been very early attached to them. This is inferred from the circumstance that mention is made of one of them, *silver*, as precious, and a representative of property, long before gold.

Trade originally must have consisted in the simple exchange of one article for another, for which one person either had need, or conceived that he had; but when the accumulation of certain goods gave advantages to the owner over those who were destitute, various animate and inanimate things were selected, from one period to another, to represent their value. A bow, for example, was considered equal in value to ten arrows,—because ten arrows could be manufactured in the time required for constructing one bow. Here, then, it seems to a considerable extent property was really the worth of one's time: that is, if one arrow could be made in one hour, then one arrow would be a compensation for the hire of one's time for that period.

Cattle, in Italy, were once the circulating medium, as in the age of Homer, and collectively were termed *pecunia*—a word derived from *pecus*, a herd. The term *pecuniary*, now in general use in monetary transactions, and thus applied in ordinary affairs of bargaining, was derived from the same root.

On the authority of Pliny, we are expressly informed that the first coin known to the Romans, had on it the figure of a cow. This simple fact evidently shows a relationship to the historical account of the former use

of those animals, to which the picture bore a significant reference. The object was to keep alive in the mind that it referred to something of more magnitude or certain worth, of which the possessor had a distinct knowledge.

The word money, universally understood by its power, was derived from the Latin *moneta, moneo,* signifying to mark. Thus all coins, with a few exceptions, in all countries, have ever borne some visible mark, either by device or character, expressive of their intrinsic value. Thus a piece of metal, of whatever kind, bearing the image of the Roman cow, was an evidence that it was of the value of one such animal; and another of double the weight or size, was equal in value to two or ten cows, as the case might be.

Subsequently, in order to make great wealth less bulky and burdensome, metals not readily accessible, and therefore necessarily scarce at all times, were selected,—being multum in parvo—much in a little space,—to stand in the place of the real articles, which were the acknowledged wealth of any one person, or the public. Finally, it is by no means improbable, even in theory, to suppose that a certain portion of gold, one fourth of the dimensions of that bearing a picture of the Roman cow, for example, because difficult to obtain from the earth, ultimately became the symbol of that useful domestic animal.

On a certain momentous occasion, says an early historian, when the Romans were exceedingly pressed for money, Juno informed them that if they would practice justice, they should always be supplied. The goddess was afterward called *Juno Moneta*, and her temple became the first regular national mint of which there is any tradition. In the course years, money was ascertained to be so useful that it was deified, and made a goddess, under the name of Dea Pecunia. She was represented as a female holding a balance in one hand and a cornucopia in the other. One was significant of just weight, and the other of plenty.

Savages and barbarians, wherever discovered, have ordinarily had some circulating medium, the acknowledged representative of property. The Indians of all North America, when visited first by our European ancestors, had an article of difficult fabrication, called wampum. So absolutely necessary was it to have something to represent property, in the first settlement of New England, in the scarcity of the precious metals, that long after the organization of the government of Massachusetts wampum was a legal tender.

The Sandwich Islanders had a whale's tooth, a kind of red ochre, and hogs. At the Marquesas Islands, a whale's tooth, twenty-five or thirty years ago, was the ne plus ultra of wealth; and the native who by any labor, artifice, or sacrifice, was so fortunate as to obtain one, constantly wore it suspended by a cord from his neck, and thus became the enviable Crœsus of the whole region. The negroes of the west coast of Africa, and probably through the interior of that vast continent generally, have cakes of rock salt or cowries, a common muscle shell, stained red,—thousands of bushels of which have been carried there from this and other countries, for the purchase of ivory, gold dust, ostrich plumes, and slaves.

Iron bars were once in use by the ancient Lacedemonians for money, having been first heated and then quenched in vinegar. The odor exhaled from them was an evidence of a lawful preparation for trade in exchange for commodities; and it was understood, moreover, that all bars thus pre-

pared should not be used for other or baser purposes. Besides, the notion prevailed that the iron cooled in vinegar was made too brittle for domestic use. This was a trick of the state to prevent unlawful imitations.

Before the invasion of Julius Cæsar, the natives of England had tin plates, iron plates, and rings, which were money, and their only money. On the authority of Seneca, a curious account is given of a period when leather, appropriately stamped to give it a certain legal character, was the only current money. At a comparatively recent date in the annals of Europe, Fredich the Second, who died in 1250, at the siege of Milan, actually paid his troops with leather money. Nearly the same circumstance occurred in England during the great wars of the barons. In the course of 1350, King John, of France, for the ransom of his royal person, promised to pay Edward the Third of England 3,000,000 of gold crowns. In order to fulfil the obligation, he was reduced to the mortifying necessity of paying the expenses of the palace in leather money, in the centre of each piece there being a little bright point of silver. In that reign is found the origin of the travestied honor of boyhood, called—conferring a leather medal. The imposing ceremonies accompanying a presentation, gave full force, diginity, and value to a leather jewel, which noblemen were probably proud and gratified to receive at the hand of majesty.

So late as 1574, there was an immense issue of money in Holland stamped on small sheets of pasteboard. But further back in the vista of years, Numa Pompilius, the second king of Rome, who reigned 672 years before the Christian era, made money out of wood as well as leather; a knowledge of which might have influenced King John in the bold project of substituting the tanned hide of an animal for gold and silver, well known to his subjects to be exceedingly precious.

Both gold and silver appear to have been in extensive circulation in Egypt, soon after their potency was understood in Asia. From thence they were introduced into Carthage and Greece; and finally, travelling further and further in a westerly direction, the city of Rome discovered the importance of legalizing their circulation.

Weight having always been of the first importance in early times, the shape of money appears to have been regarded with perfect indifference for a series of ages.

Although there is a manifest difference between money and coin, they both convey to the mind, in our day, the same idea. The term coin, originally, was considered a pure French word, signifying *corner*.

Coin is considered by some antiquarians to be a corruption, and has reference to many varieties of ancient coins, which were ordinarily square, and consequently distinguished by their corners. Others derive the word from *cuneus*, a wedge, since ingots of bullion in former times were of that shape. Another class of bibliomaniacs trace the word *coin* to the Greek κοινος, *common*, since it is the common object of necessity and avarice, the whole world through.

The etymology, however, is of little consequence, since most other useful inventions belonging to the earliest condition of the human family, are lost in the accumulating lumber of six thousand years.

When the bits and portions of metal received as precious, were extensively circulated, it is quite probable that each possessor shaped them to suit his own conception, as practised to some extent at this time in remote places in the East Indies:—the payer away cuts off parts with shears,

till he obtains, by exact weight, the stipulated amount. It was thus that men travelled with the evidence of their possessions in a sack. But great inconvenience must have resulted from this often tedious process; and as nations advanced in civilization and the economic arts, a certain mark or impression on certain sized pieces were acknowledged to be the sign of a certain weight. This facilitated negotiations, and afterward led to further improvements both in the shape, weight, and beauty of the external devices.

By and by the profile of the king, the date of the coinage, and the record of important events, gave still more completeness and character to the circulating article of exchange.

Although brass is a compound of two metals, zinc and copper, both existing in abundance, the method of compounding them might have been kept a secret from the vulgar eye, so that it was no difficult undertaking for an organized government to give it a fictitious value; and accordingly, till the reign of Gyges, king of Lydia, 720 years before our Saviour, and 300 after Solomon, the principal wealth of the renowned Delphic temple consisted of brass tripods, and vessels consecrated to the service of paganism. Of the scarcity of gold and silver in the infancy of some of the Grecian states, the following circumstance will bear testimony. One hundred and fifty years after the death of Solomon, the Lacedemonians were obliged to have recourse to Crœsus, to procure the gold of which they formed the statue of Apollo, on Mount Thornax.

After that, Hiero, king of Syracuse, sought everywhere, and for a long while too, to obtain gold for a statue of Victory, and a tripod for the Delphic temple; and at length procured it at Corinth, in the house of one Architetes, who had collected it in small quantities, by purchases. He supplied the king with the exact weight required, and besides gave him a handful, as a personal present, which Hiero repaid by sending him a vessel laden with corn.

Athænæus quotes a passage from Anaximenes, tutor of Alexander the Great, who wrote 350 years before our era, which states that a golden necklace of Eriphyle, given her by Polyneces, formerly the property of Venus, was chiefly celebrated because gold was so wonderfully scarce in Greece. The same author asserts that Philip of Macedon, in the early part of his prosperous reign, before he had procured gold from the Thracian mines, on retiring for the night, was in the habit of placing a certain little golden cup under his pillow for safety, so highly was it prized on account of the rarity of that metal in his otherwise rich dominions.

The scarcity of the precious metals in Greece from a very early point of history, down to the beginning of Philip's government, forms a striking contrast with the representations given by historians of their abundance in Egypt and India in contemporary ages.

The Grecians were hardly known to the Hebrews, and this is a reason why mention has not been made of them in the Old Testament. The knowledge acquired by the Jews of other parts of the world, was principally confined to Egypt, Arabia, and that part of central Asia denominated Chaldea or Assyria. Whilst they were themselves slowly advancing in civilization, the classic Grecians were unknown, because they were barbarians, and feeble as a people.

In Greece, silver was the first coined metal; but in Rome, where it was wholly unknown, copper and brass were the first used as money. The first valuation in the eternal city, was by the *libra gravis æris*—a

pound of heavy brass. Silver and gold were regulated by weight, after the army procured them by conquest. The old as well as the present Roman pound consists of 12 oz. of 458 grains each to the ounce—being just equal to the avoirdupois ounce.

Large sums of money in the old Roman world were invariably reckoned by a large weight, called *pondus*—or a hundred pounds of brass.

The first regular operation of coining money transmitted by history, was in the reign of Servius Tullus, 460 years before Christ. It was made of brass, and each piece weighed half an ounce. Shortly after, a larger piece was coined, called *sestertius*, equal in value however to only about five cents. Yellow brass possessed double the value of the common, or bronze-colored. Commencing with the reign of Augustus, the sestertius was wholly fabricated of yellow brass.

A new issue of money took place in the reigns of Valerian and Gallienus, made of copper, silver-washed, called *denarii*, equal in value to 10 asses,—being in our currency about 14¼ cents only.

Two hundred and sixty years before the Saviour, in the year of Rome 485, silver was made use of by government as currency, upon which was a large cross or rude letter X, numerically meaning 10, because 10 asses were represented by it.

This kind of coin was continually changing in value through a succession of emperors, till the original worth was entirely lost sight of. All those of the oldest date bear the figure of a female in a helmet, on one side, and the rude X in relief, on the other.

The next money, in point of time, had the head of Roma on one side, with the name of the master of the mint on the other, together with some minor figures. The third order, still younger, bore the head of the consul:—hence the name of *consular denarii*. Celsus, the physician, agrees with Pliny in saying that 84 denarii were coined from a pound of silver.

It is curious to remark, that one denarius, at the epoch of their greatest worth in Rome and its dependencies, was amply sufficient to support a man genteelly a whole day. Indeed, 14¼ cents would sustain the dignity of a Roman senator, so far as the necessaries of life were concerned, twenty-four hours. This, contrasted with the artificial requirements and luxury of our day, is particularly striking. The actual cost of a single dinner at a respectable hotel, would have boarded a Roman gentleman, when that power swayed an universal empire, more than seven days.

The next device amongst the Romans for representing property, in which much was comprised in a small space, was the invention of *golden* money, two hundred and four years before the Saviour. It was called the *auris:—denarius aureus*, or golden denarius.

Many curious and singular facts might be collected upon the history of figures displayed on the coins of different nations of antiquity, but the inquiry properly belongs to the details of the art of die-sinking.

Notwithstanding the detestation of the Jews to all pictures, reliefs, or resemblances to living things, because they entertained a fear that they might lead to idolatrous worship, they seem to have forgotten their own policy when the shekel exhibited the golden pot of manna on one side and the budding rod of Aaron on the other.

The Dardans, a free people of the ancient city of Dardanum, situated on the strait now called *Dardanelles*, figured two cocks on their money, in the act of fighting. Alexander pictured his famous horse Bucephalus

on his; and it was continued by the numerous generals who divided the ample dominions of their master amongst themselves after his death.

Many of the Athenian coins had on them the figure of an owl—and some an ox. There was a little attic wit upon this device, familiar to the Grecians—*bos in lingua;* for they used to say of a lawyer who did not exert himself to achieve a cause, as it was well known he had the power to do, that he had an ox on his tongue.

In Ægina, the money exhibited on its face a tortoise,—signifying that it should go slowly and deliberately from the pocket.

No living individual's features were stamped on money till after the overthrow of the Roman commonwealth, when the emperor fixed his miniature upon it. Since that prodigious innovation, the displacement of the gods and goddesses and arbitrary signs, the example has generally been followed by princes and rulers in all countries, with the exception of the United States and Turkey. But the Turks are not to be classed with civilized nations, while some of their principal institutions are utterly at variance with the scheme of progressive civilization and Christianity. Their money is simply inscribed with the name of the living sultan, as far as practicable, and the date of the year when Mahomet went to paradise. Their utter detestation of all kinds of images and pictures, totally forbids the introduction of resemblances to animate or inanimate things, at least under the sanction of government; nor would such specimens of art be willingly tolerated even in private.

A variety of strange devices are exhibited on European coins in each successive age, infinitely curious, and interesting to those who delight in studying the progress of the arts from age to age. Our own money neither bears the head of the president of the United States, nor any particular subordinate magistrate; but simply an ideal profile of liberty.

Formerly, in England, there was a mint in nearly every county in the realm. As the principles of government became better understood, the privilege of coining money was tacitly conceded, and wisely too in a monarchy, to be a royal prerogative. It should always be the exclusive right of the supreme authority of the land to regulate this essential, life-giving stimulus of national industry and individual enterprise, or it would be so debased, without the incessant vigilance of the law, that it would become utterly valueless.

From all we can discover in the history of the past, the multiplication of money has invariably belonged exclusively to the state. Till within a comparatively short period of two hundred and eighty years, the process of coining was extremely rude and unsatisfactory—being nothing more than placing a flat piece of gold or silver between two dies, engraven with letters or devices, and striking the upper one with a hammer sufficiently forcibly to make an impression in relief. This was rightly enough called *hammered money,* being in harmony with the spirit and letter of contracts in those days, which expressly provided for payment in *hammered money;* and meaning much the same as *current money,* with us. So far as the beauty of the pieces was concerned, it was invariably imperfect, arising from the difficulty of placing the dies exactly over each other, and striking a uniform blow. In a large portion of the old Spanish dollars, and particularly on the margins of the pistareens, there is the appearance of inequality in width as well as thickness—resulting from a sliding, as it were, of the dies.

The French are wholly entitled to the credit of having invented the coining press, first used in the palace of Henry II., between 1550 and 1553.

Henry III., however, re-established the hammer dies, on account of the cheapness of manufacturing with the old tools. During the reign of Queen Elizabeth, the press was introduced into England, but in about ten years abandoned on the same account as in France. In 1645, Louis XIV. again patronised the new money-mill, and in 1623 it was again revived in England, although alternately used with the hammer and dies till 1662, when its utility was completely established over the old and antique process.

Coining is now performed in the tower of London, as at Philadelphia, Charleston, and New Orleans, by steam power. Eight presses, attended by as many small boys, will coin 19,000 pieces of any denomination of money in one hour; and the machine in the mean time registers itself the exact number, so that it is literally impossible for a workman to deceive the overseer.

English money obtained the following specific designations quite early after the legal system of coinage was established. The pound at first really was a pound in weight, of silver; after a while a number of certain kinds of pieces collectively weighing a pound, being more convenient, were received as equal to one solid mass; but there never was a real piece of money stamped as a pound. The pound consequently refers to a certain amount or aggregation of small and convenient pieces of gold or silver, existing in the coffers of the government, or promised on the face of a note issued on the authority of parliament, as the case may be.

Cash, in commercial language, means ready money, supposed to be in immediate possession, from the French word *caisse*, chest or coffer.

Guinea was so called because first made of gold brought from that part of Africa, and formerly bore an elephant on one side. *Angels*, now extremely rare, are no longer wrought. Penny was once called *penig* by the Saxons. Farthing means *four things*, or parts of a penny, &c. Copper was coined in Elizabeth's time, in small quantities, but not well received by the public.

During the existence of the Saxon heptarchy in England, money was scarcer than it ever was before, from the invasion of the Romans, or at any period since.

When the Romans abandoned Britain and Gaul, over which their dominion had been supreme, they carried with them every thing that was considered portable wealth, leaving nothing behind to which they attached much value. What is now Great Britian, especially, was left so deplorably poor, as it regarded gold and silver, that *living money*, so called in law, became a legal tender. This consisted of slaves and cattle, which passed currently and without question, in the payment of debts, and really supplied the deficiency of money. Here we see man suddenly reduced to the necessity of resorting to the primitive mode of transacting business, which has already been adverted to. When one person owed another a certain sum, if he could not raise the coin, or only a moiety of the stipulated sum, the deficiency was made up in living money, which was understood to be slaves, horses, cows, and sheep, at a rate established by law. All kinds of mulcts imposed by the state, the courts, or penances by the church, were paid in *dead* or *living* money, as was most convenient; with

one exception, for the church always refused slaves in payment for penances. This custom was so general in Scotland and Wales, that it is believed no coinage took place in those countries in the Saxon ages.

The very little money, however, kept from the Romans, in the country, was almost exclusively struck at Constantinople, and called *Byzants*. One pound of gold was coined into seventy-two of those pieces. St. Dunstan, who figures in English history, purchased of king Edward the manor of Hendon, in Middlesex, not far from the year 960, for two hundred byzants; being a little more than three pounds weight of gold, which would make the cost one hundred and fifty pounds sterling, not the present one thousandth part of its value.

Alfred the Great was one of the richest princes of the age in which he lived, yet he bequeathed only five hundred pounds to each of his sons, and one hundred to the daughters. The Saxon pound weight of silver was 5,400 grains, which, in the present English currency, would be fourteen hundred pounds to the sons, and two hundred and eighty pounds to the daughters.

In the reign of Ethelred, anno 997, the price of a man slave was £2 16*s*. 2*d*.; a horse, £1 15*s*. 2*d*.; an ass, 14*s*.; an ox, 7*s*.; a cow, 6*s*. 2*d*.; a swine, 18*s*. 10*d*.; a sheep, 18*s*. 8*d*.; and a goat only 4½*d*.

Notwithstanding the low price of what were generally considered necessary commodities, the nobles were corrupt, and as much addicted to sports of the field, as under the government of Queen Victoria. At that period, the price of a greyhound or a hawk was the same as that of a man slave; and the robbing a hawk's nest was punished as severely by the law as the murder of a human being.

Ethelred was compelled to pay tribute to the Danes, which so exhausted England, as again to compel the country to submit to the monarchy of Canute. In France, at the period we are contemplating, the scarcity was equally embarrassing. Charles the Bold, at the close of the ninth century, when projecting a military expedition into Italy, could only raise, by all methods in his power, some of which were extremely unjust and oppressive, 10,000 marks, or £18,000. By the accounts preserved in the Cathedral of Strasburg, the wages paid the masons who labored on that magnificent edifice, was only two pfennigs a day. The pfennig was a copper coin, of which one hundred and twenty were made of a pound of the metal. When the great bridge of Dresden was erected, in the thirteenth century, two pfennigs a day was the sum each mechanic received.

Low in value and character as was the coinage, it was counterfeited, debased, and even clipped to a great degree, though the law visited the criminal, when detected, with all its might and terribleness. The Jews, whether always justly or not, were prodigious sufferers, for cruelties towards that oppressed remnant of Israel were considered meritorious by all classes of society. Two hundred and eighty Jews were put to death in London alone, for debasing and clipping money, in the single year of 1279, besides many more in other parts of the realm. That was an ominous period, for at the time of those executions, all the goldsmiths in the kingdom were simultaneously seized and thrown into prison on mere suspicion that they were guilty of the same crime.

Richard I. of England, in 1192, on his return from the Holy Land, was made prisoner by the Duke of Austria. He wrote a letter to his mother, queen Elenor, and to the judges of all England, beseeching them to raise

the price of his ransom, which was fixed at 70,000 marks, or £140,000. No application was made to the merchants for assistance, because they were probably too poor. In 1194, when the king was released, the ransom was raised by melting the silver cups used in the holy eucharist; and a tax of one fourth of the income of all persons, including eccleciastics, was laid; and then, it was only by the friendly assistance of France, that the monarch finally raised the whole sum.

The iron money of Lycurgus, the South Sea Bubble, the tulip mania of Holland, and the issues of paper from banking institutions incorporated with certain privileges, are subjects of profound interest, on account of the influences they have exerted on the affairs of mankind.

Lycurgus, the Spartan lawgiver, who flourished a little while after the splendid and glorious reign of Solomon, not far from nine hundred years before the advent of the Saviour, in order to regenerate the political character of a country which he considered on the verge of destruction—a nation whose rank and fortunes had fallen below the standard of supposed excellence in war, and surely, therefore, sinking into comparative obscurity, and whose redemption seemed to depend on a thorough reformation of manners—first equalized the landed property. In imbecile Sparta, as everywhere else, there were the poor and the rich; but under the vigorous system of regeneration adopted by that most resolute and daring theorist, each man had a lot of ground given him, which was capable of yielding, one year with another, upon the average, seventy bushels of grain; and twelve for every woman, besides a requisite quantity of oil and wine.

He then attempted to subdivide their moveable, personal property, in order to take away all appearances of inequality; but he soon perceived that such rashness could not be tamely endured, and Lycurgus therefore contrived another less offensive, but not less arbitrary method, of achieving by stratagem what he could not accomplish by more direct means.

First, he interdicted the circulation of gold and silver, and ordered that the only metallic representative of property should be of iron exclusively. To a great weight of that he assigned but a very small value, so that to lay up ten minæ, ($142 37,) a room was necessary for its storage, and to move it from one place to another, it was necessary to have a yoke of oxen.

When the Spartans, however, became dissatisfied with their native territories, as prescribed to them by their despotic legislator, and broke into other countries in their wars, iron money was of no service; the gold of the Persians dazzled their eyes, till at length they became actually distinguished for covetousness, and renowned for a morbid appetite for that which they had been positively forbidden to use.

During the long period of the Peloponnesian war, the Spartans were sometimes vanquished, but often the victors; yet they could never have made any serious impression upon their rival foes, had not stupidity and folly weakened their ranks.

From the moment the Spartans became money-loving, may be dated the complete ruin of their vigorously disposing constitution. The treasures found in Athens, the spoils of Persia, the plunder of unoffending strangers, together with the fruits of commercial industry, were transported by Lysander to the home of the iron minæ. He was a commander of prodigious power and unbounded ambition; proud, haughty, avaricious, and not at all scrupulous about the means by which he accomplished his

ends. Having gained over to his views a strong party in Sparta, he prevailed so over them as to introduce riches into the state; not, as was asserted, for the benefit of individuals, but on account of the pressing necessities of the government. But it soon found its way to the coffers of individuals, and consequently carried with it dissensions, luxury, and a fixed aversion to the rigorous discipline of their fathers. Very speedily, notwithstanding the supposed stability of a fundamental law on which their property was acknowledged to rest, people began to manifest an eagerness to possess the new money, as an alleged means of improving their condition, and of elevating themselves from that positive dependence which Lycurgus, by his institution, had intended permanently to establish. A common bond of union was consequently destroyed by the introduction of a new species of wealth, the exclusion of which had raised Spartan reputation, till the nation was regarded almost as invincible. Interests were by and by divided, and each one contemplated in the growing degeneracy objects altogether foreign to national glory. Such was the consummate skill of Lysander, however, that he diverted all minds from the enormous vices, profligacy, avarice, and dissimulation of which he was guilty. With the acquisition of foreign money came effeminacy, physical debility, laxity of morals, and impiety. Neither purity of thought nor public virtue, could be restrained against the devouring influence of money in the once invincible Sparta. Such is the simple story of an experiment on a larger scale of first abrogating the use of money, where it had once been the representative of wealth and power, as the greatest obstacle to national integrity and virtue.

Xenophon relates that Lysander sent from Athens many rich spoils, beside 470 talents of silver. Its safe arrival at once created disputes and bickerings to which they had not been in that generation at all accustomed. Some celebrated the praises of the fortunate commander, and publicly rejoiced in his good fortune; but others, who knew the nature of wealth, and who also understood the value of their constitution, entertained an entirely different opinion: they looked upon the receipt of this enormous treasure as an open violation of a law imposed upon the state under peculiar solemnities. They even had the fearlessness, notwithstanding the increasing corruption of manners, to express their apprehensions in the ears of the magistrates.

Events followed in quick succession that justified their apprehensions. Dissensions, dissatisfaction with the administration of affairs, and the indolence and advancing poverty of a once proud-spirited race, was perceptible to surrounding nations in the rapid decay of all the former distinguishing characteristics of Spartan heroes.

It is obvious that the experiment of Lycurgus was diametrically opposed to those innate feelings, which, under all circumstances, have had, and always will exercise a controlling influence on human character. The love of individual possession is inherent, and any attempt to deprive men of that to which they affix a specific value, without their free concurrence, engenders turmoil in small communities, and public calamity and even desperation in a polished nation.

The practical operation of the principle has been repeatedly exemplified in Turkey, especially by the late Sultan Mahmoud the Second, who regulated the value of money almost weekly, a few years since, according to his exigencies. If a large sum, as frequently happened in direct taxa-

tion, became due to government, word was sent forth that the para was worth but two thirds, perhaps, what it passed for two weeks before. On the other hand, if the Sublime Porte was paying off large bodies of troops, or otherwise making extensive disbursements, then the value of the para was boldly announced to be worth more than when the same identical money was paid by the subject to the public receivers.

The next remarkable experiment for substituting a worthless article for that which had universally been esteemed precious, took place in Holland in the last century, at the very period when the nation was extensively known for its mercantile enterprise and thrift in trade wherever the name of Holland was known.

Strange as it may appear, instead of employing some durable material, or issuing a promissory note under the obligations of a chartered institution, the calculating people of that land of dykes hit upon the root of a vegetable, a garden plant, which speedily, by general consent, became the representative of the wealth of the country. It was nothing more ponderous or rare than the bulbous root of a tulip; not the beautiful expanded flower—no, nor the bud that contained an incipient flower, but the mere root, which was bought and sold with extreme caution by the *perit*, a weight considerably less than a grain.

Such was the eagerness and positive insanity of all orders of persons possessing the means of embarking in the newly developed highway to fortune, that the epoch of the tulip excitement has been properly called the tulip mania of Holland. The greatest trade in those roots was carried on in Hærlem, Amsterdam, Utrecht, Leyden, and Rotterdam, during the years 1634–5–6–7. At the close of 1637, the fiscal fever began to subside, and men, otherwise shrewd and circumspect, were brought to their senses and bankruptcy at the same moment.

A Dutchman by the name of Munting wrote a large volume containing a minute history of that strange infatuation, in which those who may like to make themselves acquainted with the process of conducting the tulip exchange can find the particulars.

Different varieties sold for different prices; and such as were of a celebrated character for some latent property, highly estimated by the stock-brokers, bore enormous prices in the general market. One was called the Admiral Leifken, another, the admiral Van der Eyk, a third, Semper Augustus, &c. A root of the variety denominated *viceroy*, brought 448 florins. When the mania was at its meridian, and the roots were exclusively sold by weight, the sum of 4,400 florins were once given for an Admiral Leifken. A Semper Augustus is recorded to have been once purchased at the alarming price of $8,000.

It so happened in the operations of trade between cities, at one period, that barely two roots of the peerless Semper Augustus were supposed to exist in all Holland, which had the effect to so raise the price, that one of them, the enviable property of a gentleman in Amsterdam, sold for 4,600 florins; the other was at Hærlem. Twelve acres of land in one instance were given for a little fibre of the choice Semper. Munting speaks of a person of his acquaintance who made 60,000 florins in four months by successful operations in tulip roots.

Such was the extravagance, and such the singular infatuation of the most intelligent classes, that the common affairs of life were seriously neglected in the swift pursuit of fortune through this new channel.

Merchants possessed a vast or limited capital, in proportion to the magnitude or insignificance of their tulip roots. Daughters were portioned with a few ounces magnificently, and noblemen of the highest consideration and family importance vested their possessions in a perishable vegetable that could be carried in a teacup. When the bubble burst, and the roots suddenly fell in public estimation, abject poverty stared the nation in the face.

It is related that an English sea captain had occasion to call at the residence of a distinguished capitalist at an early hour of the morning, accompanied by one of his sailors in the capacity of a servant, who told Jack that he might walk in minheer's beautiful garden till he was ready to return. After admiring the regularity of the walks, the extreme beauty of the shrubbery, and the flowers that bordered the neatly swept paths, he noticed a slender stem of a plant which he took to be an onion; without hesitation, he pulled it up and devoured it, but discovered that he had mistaken its character on chewing it. Directly after, the man of the house came into the garden to gratify the English stranger with a sight of the basis of his acknowledged wealth. On discovering the fact of the destruction of his tulip, he exclaimed in an agony of mind, "I am ruined! I am ruined!!' In fine, the tulip-root mania was a high-handed species of stock gambling, almost without a precedent in the annals of the world. The Mississippi Scheme for embodying the wealth of the globe in a few favored hands, as it were, and the South Sea Bubble, although equally interesting in their effects on the condition of trade, and the morals of the people involved in the speculation, will not compare, in point of historical effect, with the tulip mania of industrious, plodding Holland, from 1634 to 1637.

Thus, we discover that from the remotest ages, men have placed not only a high, but a specific value on gold and silver, as the signs of personal possessions, and the consent of the nations of the earth is still in favor of maintaining the original device of representing wealth in the same manner; and the spirit of all legislation has had reference to securing and perpetuating in them an intrinsic value. When a daring innovation has been made to subvert the established order of things in this respect, there has invariably been a secret design of taking from the people, under the sanction of law, an acknowledged good, for the express purpose of giving them in exchange something better. But on analyzing the motive by the sure test of historical truth, it is apparent that deception, knavery, and a morbid craving for that which is ostensibly despised, is invariably interwoven with these attempted revolutions.

At last, in the progress of national events, when the heavy money began to be considered inconvenient and burdensome in extensive mercantile activity and intercourse with distant provinces or countries, only to be approached by crossing sections of an ocean, the genius of invention was called upon to propose a plan attended with less risk to the owner.

Iron was too plenty to be precious—roots were perishable—and copper, tin, and brass, belonged to the arts everywhere; under such circumstances, the ingenuity of the Venetians enabled them to establish a depot for the safe keeping of legalized coin in great quantities. The actual owners of this deposit issued a paper note, on which they stipulated to pay as many ounces, pounds, pennyweights, or florins, as the case might be, to the person to whom it belonged, whenever he might choose to pre-

sent it. This was the beginning of a paper currency, and the origin of the banking system of our times. The bills thus constructed would be conveyed with ease and safety under circumstances in which the traveller could not carry a large sum of gold or silver. The promptitude with which specie was paid whenever demanded on the face of the note, at once established their credit, and, consequently, changed the whole financial machinery of the world. By this grand discovery, an immediate impetus was given to commerce before unknown; a new energy was manifested wherever the beneficial effects of the novel mode of conveying money was mentioned. In short, almost an entire revolution in the physical and moral world has been brought about by this simple, yet effective operation.

Before the regular construction of safe banking houses, such as are commonly seen in cities, the utmost stretch of mechanical ingenuity was called in requisition, to protect the treasures collected together by rulers and merchants.

To show what perplexities attended the preservation of money against the cunning and adroitness of thieves, in the first stages of society, the following account is principally collected from the biography of an Egyptian prince, Rhampsinitus, by the father of history, Herodotus. His description of a treasury house is, perhaps, the oldest on record. When the fact is remembered that it was written by a man born in the 73d Olympiad, or 2,325 years ago, nothing is lost in interest, even were it wholly untrue, inasmuch as it illustrates the powers of the human mind in the region of fiction, at a period that now seems like the infancy of mankind. The story is substantially as follows:—

"The same instructors further told me, (alluding to the priests with whom he discoursed,) that Proteus was succeeded by Rhampsinitus: he built the west entrance of the temple of Vulcan. In the same situation he also erected two statues, twenty-five cubits in height."

This prince possessed such an abundance of wealth, that, far from surpassing, none of his successors ever equalled him in affluence. For the security of his riches, he constructed a stone edifice, connected with his palace by a wall. The man whom he employed, with a dishonest view, so artfully disposed of one of the stones, that two, or even one person might easily remove it from its appropriate place.

In this building, when completed, the king deposited vast treasures. Some time after, when the artist found his end approaching, he called his two sons before him, and informed them in what manner, and with what intention, he had placed a moveable stone, that gave entrance into the central depository of the treasury house. And now, being confident that approaching death would deprive him of profiting, as originally intended, by a personal entrance, he therefore confided to them the choice secret, with a view to their future emolument, should their circumstances ever compel them to make use of this knowledge. A strange state of the public morals, to be sure, when a dying father encourages his children to become thieves and robbers!

He then minutely explained the particular situation of the pivoted stone; gave minutely its dimensions, by the observance of which, they might at any instant become masters of his majesty's treasure.

On the death of the father, though, perhaps, under no impulse of necessity, the sons were prompted by an insatiable curiosity to try their luck—

to ascertain if all they had heard, it would seem, was actually true. Under the cover of a dark night, they visited the building, discovered the moveable stone, made an entrance, and returned home with a surprising sum of money.

It is worthy of remark that in this narrative we are positively assured of the existence of a coinage in Egypt, according to the priests, many centuries before the precious metals assumed any such forms at Rome.

As soon as the king entered the apartment the next morning, one of his regular habits, he noticed with astonishment that the vessels that contained money the day before were materially altered in appearance; and what surprised him beyond measure, was the fact that the seals on the door, renewed frequently, were unbroken, and all the customary entrances remained perfectly secured.

He could not direct his suspicions against any one of the royal household attendants, and as for gaining admission in any other way, it was conceived impossible. Entrances however were several times repeated, and the king witnessed the gradual diminution of the money and jewels, without being able to account for the mystery of their abstraction.

Finally, in order to effect a discovery of the thief, cunningly devised traps were placed near the holding vessels. The robbers came as before. One of them moved cautiously along, as usual, on former visits, in advance of the other, where he was secured by the traps in a twinkling of an eye. After deliberating upon his condition, and being satisfied of the impossibility of extricating himself, or being liberated by the brother, he saw instinctively, that the only way of preserving one life, was to sacrifice the other. With a strange presence of mind, he begged to be killed instantly, and charged the trembling brother not to be content with depriving him of life, but as his body could not be disengaged from the apparatus, to flee with the head, as the last and only means of preventing his own detection, and consequently, the death and destruction of the entire family.

Unnatural as it may appear, he decapitated the captured prisoner, and made an immediate exit with the head, leaving the body in the trap, closed up the opening, and returned home.

At daylight Rhamsinitus again walked in to inspect the urns—when lo! the first object that greeted his amazed eyes, was the headless body of a man, standing upright in the faithful machine, not the least alteration being perceived in any partition, or the strongly bolted doors. This confounded him more than any thing else. In this perplexity, he commanded the dead body to be suspended upon the outside, towards the high way, strictly enjoining it upon a number of trusty guards to seize and bring into his presence any one who discovered symptoms of compassion, or sorrow at the horrible exhibition.

The mother of the young man, on being made acquainted with the fatal result of the night's adventure, became exceedingly exasperated at the surviving son, and declared that unless he forthwith procured the body from its ignominious exposure, she would go herself to the king and disclose all the circumstances of the robbery.

Driven almost to madness with such a prospect of accumulating danger, the survivor endeavored to alter the distracted mother's determination by appeals to her maternal affection, but without the least ray of success. To save his own life, therefore, he resorted to a singular expedient.

Having procured some asses, they were laden with wine put up in the

ancient method, in sacks made of the skins of animals. The animals were driven near the spot were the soldiers were stationed. As soon as he had approached near enough to be noticed, a peg adroitly fixed in the mouth of a sack was started, and the wine consequently began to flow pretty freely from the orifice. He commenced beating himself and crying out vehemently with pretended distress, at the loss. The soldiers perceiving the accident, ran with vessels to save what they could of the delicious beverage, which they considered a clear gain to themselves.

At first, with apparent anger, he reproached them for their unprincipled conduct, but gradually listened to their endeavors to console him for the misfortune. The asses were then leisurely led out of the road, apparently to secure the leak. A brisk conversation, mutually agreeable, followed. He affected to be delighted with the drollery of one of the guards, to whom he gave a generous draught of wine, and with his companions he sat down to drink,—insisting that the generous ass driver should bear them company.

As previously anticipated, the wine produced its specific effects, and the whole of them became exceedingly drunk and fell into a profound slumber. Under the advantage of nightfall, the robber adroitly took down the body, placed it in one of the sacks, and before leaving the scene of the exploit, in derision, shaved the right cheek of the quiet guards, and returned home in safety with the object of his research.

The mother was reconciled to fate, and so far as she was concerned, no further mention is made of her in the narrative of Herodotus. Not so, however, with the king; when he was told what had happened, how the body had been clandestinely removed in the presence of a select band of vigilant guards, he was both enraged and marvel-struck at a recital of the incident; but in no way relinquished the idea of detecting the bold villain who had put his royal power at defiance. He renewedly set his ingenuity at work to detect him, and next adopted the following stratagem. The king commanded that a beautiful daughter, a princess on whom he doated with paternal solicitude, should seat herself in a magnificent apartment, alone, and a proclamation was made that whoever related the most extraordinary adventure in which he had been personally engaged, should become the son-in-law of the king. Each candidate was permitted to enter alone. A part of the story, of an incredible character, is here omitted. She had been previously instructed, in case any clue to the robbery of the treasury was discoverable, or the theft of the headless body, to seize the person, and give an alarm. The injunction was faithfully obeyed. The daring rogue who had already baffled Rhamsinitus more than once, could not forbear another attempt for the mere gratification of a mischievous propensity of his nature. To begin, he cut off an arm from the body of the murdered brother, at the shoulder, concealed it under a cloak, carelessly worn, and in turn gained admission to the princess.

When asked the question that was propounded to each new-comer, what he had done that was remarkable? he replied, "that the most wicked thing that he had ever done, was cutting off the head of a brother, who was caught in a snare in the king's treasury. The most artful thing, was making the guards drunk, and by that means effecting the removal of the dead body from the treasury wall." On hearing this, the princess at once seized him, but caugh. hold of the supernumerary arm, made fast to the cloak.

Both were slipped off, and the rogue made his escape from her presence. When the attendants came in, lo! there was a cloak and one arm of a man, which when the king saw, he was, if possible, more puzzled than ever. Confounded by these repeated displays of an ingenious, though unknown rascal, information was extensively circulated, that if the bold offender would come fearlessly into his majesty's presence, he would not only grant a free, unconditional pardon, but would liberally reward him besides.

Trusting to the royal word, the thief made his appearance. Rhamsinitus was delighted with him, believing his transcendent skill in the art of deception beyond parallel. The king conceived the Egyptians superior in subtlety to all the world, but this man far excelled all his countrymen.

Paper currency or paper money, is a department of political economy developed in modern times to its fullest extent. Its advantages and disadvantages are variously estimated by the community, and consequently there are ardent friends and bitter opposers to this excellent, though greatly abused project for facilitating extensive mercantile, as well as the minor operations of trade in our own and other countries.

Arguments, almost irresistible in themselves, might be adduced, to show the advantages resulting from an issue of paper money, to every individual of a nation, when the contract between the bank and the people has been rigidly maintained.

On the other hand, testimony apparently no less cogent, based upon the actual experience of immense losses, when the flood-gates of loosely guarded banking corporations are widely opened, is arranged to prove that nothing short of a strictly metallic currency can safely be tolerated in any government, whether elective or hereditarily despotic. In a word, in the United States, there are two great parties in a state of activity, so thoroughly divided on this important question, that the issue is necessarily involved in the obscurity of the future.

Any want of good faith in a bank to redeem its notes at sight, at once begets alarm, and evils of an exciting character are suddenly produced. An agitation arising from that cause, cannot be readily allayed; yet it is neither philosophical, politic, nor right to condemn a principle because errors have been discovered in the application of it to human society,—any more than it would redound to the sense of justice in a state to execute every inhabitant of a particular district, because one of them had been found guilty of a great crime.

The revolutionary struggle was wholly sustained by the issue of continental paper money—without which, that greatest and most masterly achievement of civil liberty, it is believed, could not have been completed. Fortunately, its rapid depreciation did not take place till the war had rescued the country from foreign control, or fear of further molestation. It was then apparent that congress had not the ability to redeem the bills, and it is even now doubted whether the originators and principal dramatis personæ in that most wonderful of all national emancipations, seriously entertained the expectation of doing so in future days of prosperity.

By the practical operation of the device, the country was saved, but thousands of brave estimable patriots and their families, who bore the burden of service and deprivation, were utterly ruined.

With that fatal crisis—fatal to the popularity of paper money, at least with one party—commenced that systematic hostility and prejudice which

has so pointedly shown itself on various occasions ever since. Still, however, accurate financiers discover in the modern banking system, with all its glaring defects, the source of widely extended prosperity. Without its facilities, the merchant would soon find himself circumscribed to narrow limits; and with an exclusively hard money currency, in the present character of trade, grow poor while his coffers were filled with the precious metals.

Our object being to give an historical account of the coinage of money, simply, and not to dilate upon the policy or impolicy of measures which have raised a formidable partisan feeling between the honest and patriotic over the Union, we here leave the subject, for the commencement of another chapter, whenever events shall furnish new materials.

Art. III.—THE PHILOSOPHY OF STORMS.*

No class of men, we believe, is more deeply interested in the subject of storms than that which makes up the chief part of our readers. The same winds which waft to the storehouse of the merchant the treasures of distant climes, often, in their angrier moods, put a sudden termination to his brightest prospects, and in a single hour of tempest dissipate the earnings of many years. The mercantile community will not, therefore, deem it out of place if we call their attention to the very novel and original views of our countryman, Mr. Espy, who has just published a volume containing a full exposition of his theory of storms, together with a large amount of facts which he has collected in the course of his researches on winds, rain, hail, barometric fluctuations, &c. We have looked over its pages with an interest and gratification which we seldom feel in the perusal of a work on scientific subjects, and are constrained to say that what little of prejudice had been excited against the author, by the manner in which his name became so generally known to the public, speedily vanished before the strong facts and logical deductions which he has brought together, in support of his very simple and beautiful explanation of the phenomena of nature in the production and development of storms.

Franklin was, we believe, the first to discover that our great northeast storms "travel against the wind." A violent rain having set in at Philadelphia from the northeast, he naturally enough supposed that the storm came from that direction, and was greatly surprised, on consulting the papers from New York and Boston, to find that it commenced raining at New York several hours after the storm set in at Philadelphia, and that the time of its reaching Boston was still later. The same anomaly was also observed by Dr. Mitchell: but it remained for Mr. Redfield, of New York, to establish, by the most satisfactory proofs, the route pursued by these storms. In his papers on this subject he has fully demonstrated that they often originate in the Windward Islands of the West Indies, where they are mostly small and round, and progress in a curve towards the

* The Philosophy of Storms, by James P. Espy, A. M., Member of the American Philosophical Society, and Corresponding Member of the National Institute, Washington. Boston: Charles C. Little and James Brown. 1841. 8v. pp. 552.

northwest, enlarging as they advance, and at latitude 30 inclining more to the north. Beyond this they curve to the northeast, and as far as he has been able to trace them, they pursue a direction more or less towards the east.

Mr. Redfield has also attempted to show that in all our great storms, the wind gyrates in the form of a whirlwind; and in this he has been followed on the other side of the Atlantic by Col. Reid, who has published a volume full of interesting details on the subject, in which he attempts to develop the law of storms by means of facts with a view to practical use in navigation. But neither of these gentlemen, so far as we know, have succeeded in tracing this supposed gyration to its cause, or pointed out the dependence between clouds, winds, hail, and the other phenomena of storms. Mr. Espy has taken a step beyond them, and confidently believes that he has discovered the key which is to unlock all the mysteries of meteorology, and disclose the hidden causes which produce clouds, water spouts, tornadoes, land spouts, variable winds, and barometric fluctuations.

That result of Dr. Dalton's experiments on the aqueous vapor in the atmosphere, by which its amount in any given space may be determined by means of a glass of water and a thermometer, may be said to constitute the basis of Mr. Espy's theory, and therefore requires a passing notice. If the reader will take a tumbler of water of the same temperature as the air, and drop into it a small piece of ice, he will find, as the water cools, that dew will settle on the outside of the tumbler. The temperature at which this dew begins to form is called the dew point: and Dalton found, in the course of his experiments, that when it began to form at 32° fah., the amount of vapor suspended in the air was $\frac{1}{240}$ of the weight of the atmosphere—that when the dew point was at 52° the air contained twice as much vapor as it did at 32° or $\frac{1}{120}$ of the weight of the atmosphere, and that when the dew point was at 73° the air contained four times as much vapor as at 32° or $\frac{1}{60}$ of the weight of the atmosphere.

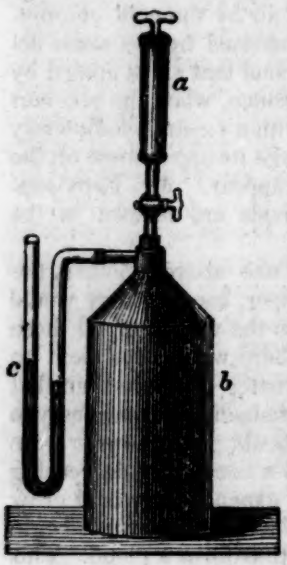
The dew on the tumbler is condensed from the air by the cold communicated from the tumbler, and it may also be condensed by the same degree of cold produced in a different way. It is found that air is cooled by expansion produced by diminished pressure, and hence, when the receiver of an air pump is rapidly exhausted, and the air within expands sufficiently to cool it down to the dew point, moisture will make its appearance on the sides of the receiver, and an artificial cloud will appear. Mr. Espy supposes that it is precisely in the same way that clouds are formed in the laboratory of nature.

If a dozen feather beds were piled together one above another, the lower ones would be pressed closer than the upper, because they would not only have to sustain their own weight, but also the weight of all those above them. For the same reason the atmosphere which lies next to the surface of the earth, is subjected to much greater pressure than that which is piled up above, and this pressure must gradually decrease as you ascend. It follows then that if a current of air should pass upwards from the surface of the earth, it would be subjected to a constantly decreasing pressure, and would consequently expand: as it expanded it would grow cold, and when it reached the temperature of the dew point, it would begin to condense its vapor into sensible moisture, and thus form a cloud. This process, Mr. Espy contends, takes place constantly in the operations of nature. Certain portions of the air becoming more heated or more highly

charged with aqueous vapor* than others, are thus made specifically lighter, and consequently rise, and when the dew point is high, these upmoving currents do not find their equilibrium until they are sufficiently expanded by the diminished pressure to which they are subjected to reduce their temperature to the point of forming dew, when a cloud will begin to appear.

The reduction of temperature which would thus be produced by the expansion of ascending air, Mr. Espy finds by experiment to be about one degree for every one hundred yards of ascent; and hence, if an upmoving current of air is ever produced in the operations of nature, it is easy to calculate how high it must rise before it begins to condense its vapor into visible cloud. For example: if, in a summer's day, the thermometer stands at 80°, and the dew point is 70°, then air must be cooled 10° before it will begin to condense its vapor into cloud. Consequently, if it cools one degree for every one hundred yards that it rises, then when it attains an elevation of ten hundred yards, it will be cooled down to the point of forming dew, when its vapor will begin to condense, and the base of a forming cloud become immediately visible. The bases of all forming clouds in the same neighborhood should therefore be nearly on the same level.

Again: it is known to every chemist that vapor cannot be converted into water, without releasing a large quantity of caloric, known in technical language as the *caloric of elasticity*, and thus producing a considerable amount of sensible heat. If ice is exposed to heat, caloric combines with it and forms water; if water is exposed to heat, caloric combines with it and forms steam or vapor; and when vapor is converted back to water, this caloric (heat) must necessarily be released; and, according to Mr. Espy, its agency in producing wind, rain, hail, barometric fluctuations, and all the sublime and astonishing phenomena which attend our most violent storms, has hitherto been altogether overlooked. He finds, by calculating according to well known chemical laws, that the *caloric of elasticity* released during the condensation of vapor while a cloud is forming, will expand the air in the cloud about eight thousand cubic feet for every cubic foot of water formed by the process of condensation.



The expansion of the air in a cloud during the formation of water, is also proved by an instrument which Mr. Espy uses, called a Nephelescope, or cloud examiner. It consists of a glass vessel [b.] communicating with a bent tube [c.] containing mercury, and having a forcing pump [a.] attached to it, by means of which any desirable quantity of air may be pressed into the receiver or glass vessel [b.] When the instrument is charged, the pressure on the inner leg of the mercury forces it up in the outer, and by carefully measuring the difference between the two, a given amount of pressure can be produced. When the air within (which is heated by the pressure) acquires the temperature of the air

* Vapor is five eighths the specific gravity of air.

without, the stop-cock is turned and the air permitted to escape until the mercury in both legs of the bent tube is on a level, when the stop is again closed. Now as the stop is closed at the moment the greatest cold is produced by expansion, the mercury in the outer leg will begin to ascend, and that in the inner leg to descend, and the difference of level at which they settle will indicate the reduction of temperature produced by a given expansion. But what the general reader is chiefly concerned to know in this experiment, is the fact that when moist air is used, and a cloud is formed in the receiver, the mercury in the outer leg of the bent tube is forced up higher than when dry air is used and no moisture is condensed, showing that the *caloric of elasticity causes the air to occupy much more space when it is set free than when it is united to water in the form of vapor.**

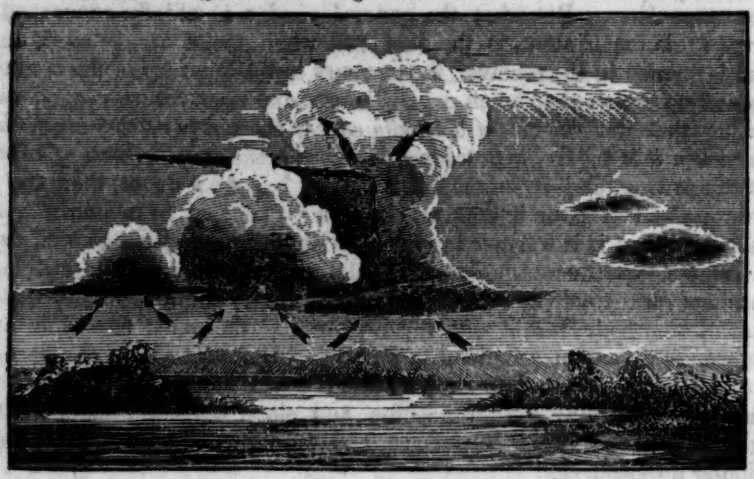
If this is true, and it seems to be placed beyond a doubt, then the air within a cloud is both lighter and warmer than that by which it is surrounded. That it is warmer is proved by actual observation as well as by Mr. Espy's experiments. Sausseur tells us that when he was enveloped in a cloud on the side of a mountain, his thermometer rose higher than in the sun; and both Durant and Gay-Lussac note the same fact while passing through clouds in a balloon. The uniform depression of the barometer under large clouds and during all our great storms, would seem also to confirm Mr. Espy's other position, and place beyond a doubt the fact that the air in the cloud is warmer, and therefore lighter than the surrounding atmosphere.

If, then, a cloud can be formed by a current of air moving upwards, and the cloud thus formed is lighter than the circumambient air, it necessarily follows that the equilibrium of the atmosphere must be more or less disturbed by every formation of this character. For if a lofty cloud by the evolution of its latent caloric, makes the air within it warmer and lighter, then will the air around it rush from all sides towards its base, and upwards into its centre; and as the wind in its upward course comes under less pressure, it will become gradually colder until it reaches the temperature of the dew point, when it will begin to condense its vapor, thus feeding the cloud with fresh materials for its expansion and perpetuity, and communicating to it, as it were, a self-sustaining power by which it moves on perhaps for days together, as we often behold in the operations of nature, enlarging as it advances, causing high winds wherever it passes, and fertilizing the earth with its refreshing showers.

"When a cloud begins to form from an ascending column of air, it will be seen to swell out at the top, assuming successively the appearances of 1, 2, 3, generally called cumuli: or, if the upmoving current should be driven out of its perpendicular motion by an upper current of air, the clouds which might then form would be ragged and irregular, called broken cumuli, as 4. These will always be higher than the base of cumuli, but much lower than cirrus. While the cloud continues to form and swell up above, its base will remain on the same level, for the air below the base has to rise to the same height before it becomes cold enough, by diminished pressure, to begin to condense its vapor into water; this will cause the base to be flat, even after the cloud has acquired great perpendicular height, and assumed the form of a sugar loaf. Other clouds, also,

* When dry air is used in the experiment, the temperature, according to Mr. Espy, is reduced about twice as much as when moist air is used.

for many miles around, formed by other ascending columns, will assume similar appearances, and will moreover have their bases all on the same or nearly the same horizontal level; and the height of these bases from the surface of the earth will be greatest about two o'clock, when the dew point and temperature of the air are the greatest distance apart."



"When upmoving currents are formed by superior heat, clouds will more frequently begin to form in the morning, increase in number as the heat increases, and cease altogether in the evening, when the surface of the earth becomes cold by radiation. The commencement of upmoving columns in the morning, will be attended with an increase of wind, and its force will increase with the increasing columns; both keeping pace with the increasing temperature. This increase of wind is produced partly by the rush of air on all sides at the surface of the earth towards the centre of the ascending columns, producing fitful breezes; and partly by the depression of air all round the ascending columns, bringing down with it the motion which it has above, which is known to be greater than that which the air has in contact with the asperities of the earth's surface. The rapid disturbance of equilibrium, which is produced by *one* ascending column, will tend to form *others* in its neighborhood; for, the air being retarded on the windward side, will form other ascending columns, and these will form other annuli, and so the process will be continued."

But, it may be asked, if the air in a cloud is lighter than that which surrounds it, and in consequence possesses a self-sustaining principle, why *all* forming clouds do not increase till they produce rain? We shall answer this question by another quotation from Mr. Espy's book. In his introduction, on page 16, he says: "Neither can clouds form of any very great size, when there are cross currents of air sufficiently strong to break in two an ascending current, for the ascensional power of the upmoving current will thus be weakened and destroyed. Immediately after a great rain, too, when the upper air has yet in it a large quantity of caloric, which it received from the condensation of the vapor, the upmoving columns which may then occur, on reaching this upper stratum, will not continue their motion in it far, from the want of buoyancy; therefore, they will not produce rain, nor clouds of any kind, but broken cumuli. Besides, as the

air at some distance above the surface of the earth, and below the base of the cloud, is sometimes very dry, and as much of this air goes in below the base of the cloud and up with the ascending column, large portions of the air in the cloud may thus not be saturated with vapor, and, of course, rain in this case will not be produced. These are some of the means contrived by nature to prevent upmoving columns from increasing until rain would follow. Without some such contrivances, it is probable that every upmoving column which should begin to form cloud when the dew point is favorable, would produce rain, for as soon as cloud forms, the upmoving power is rapidly increased by the evolution of the caloric of elasticity."

The cloud which produces water-spouts, land-spouts, and tornadoes, differs somewhat from other clouds, and can be formed only when the dew point is very high, the atmosphere devoid of cross currents, and the air in the neighborhood comparatively quiet, or rather, moving in the direction of the main current above. When these circumstances concur, and a cloud begins to form by an ascending column, there is nothing to prevent its rapid generation, and it shoots upward to a vast height, while it occupies only a small space in a lateral direction. The effects which follow the generation of such a cloud, must necessarily be more or less violent, because the whole force of the cloud is spent on a very small space. Extending upwards to a great height, and being lighter than the surrounding atmosphere, it takes off from the air below much of its accustomed pressure, and the wind consequently presses in towards its base from all sides, and rushes up into the cloud itself with fearful velocity, carrying with it all light substances, uprooting trees, bursting off the roofs of houses, barns, and other buildings, and sometimes lifting into the air heavy timber, animals, and in one instance which we recollect, a cart loaded with potatoes.

As the cloud is small in circumference, and is moved forward with considerable velocity by the main current in the higher region of the atmosphere, its progress brings it suddenly over the place which is to be the scene of its devastation; the accustomed pressure of the atmosphere is removed almost instantaneously; the barometer falls sometimes as low as two inches in the course of a few minutes, and the effect is analogous to that of an explosion. H. Tooley, who communicated to the secretary of the Albany Institute an account of the Natchez tornado, which took place on the 7th of May, 1840, has called particular attention to this last mentioned circumstance, and cited the following strong cases.

"1. The garret of a brick house occupied by Thomas Armat, Esq., as an office, was closely shut up, both ends bursted outward, and such was the force of the explosive power, that some of the bricks of the windward end were thrown upon a terrace nearly on a level with the end, and at a distance of not less than twenty feet in the face of the storm.

"2. A brick house on the north side of Main street, belonging to John Fletcher, had the leeward gable end thrown out, the windward end remaining uninjured.

"3. The windward gable end of a large house adjoining the Commercial Bank, bursted outward against the face of the storm; the leeward end was uninjured.

"4. The gable ends of a large three story brick house on Franklin street, owned by Rowan and Cartwright, were thrown outward with great force.

"5. The front ends (leeward to the storm) of two brick stores owned by Eli Montgomery, were thrown outward with great force, the windward ends being uninjured.

"6. Another large brick house, near the last just mentioned, owned by Watt, Burke & Co., had the leeward side nearly demolished.

"7. Another brick house adjoining the last mentioned, had the windward gable end thrown outward.

"8. The Theatre, a large brick building, had the entire roof blown off and thrown some ten feet forward, and the walls demolished.

"9. The leeward walls of two front rooms of the Tremont House on Wall street, were thrown outward with great force, without destroying or moving the furniture therein, and where the storm could have no access.

"10. The roof of the fire-proof brick office of the Probate Court, exploded to windward, that side, it is presumed, being the weakest.

"11. The gable ends of a large brick store on Main and Pearl streets, were thrown outward with great force.

"12. The southern side, and the northern and western gable ends of the brick Insurance buildings on Pearl and Market streets, were thrown outward with such force as to nearly demolish the building.

"13. The roof of Dr. Merrill's house on State street was saved by the explosive power bursting open a large trap door in the roof, thereby making an outlet for the expanded air.

"14. The leeward wall of a new wooden house owned by Rhasa Parker, on Washington street, was thrown outward by the explosive power, the windward side end remaining unbroken excepting the glass of the windows."

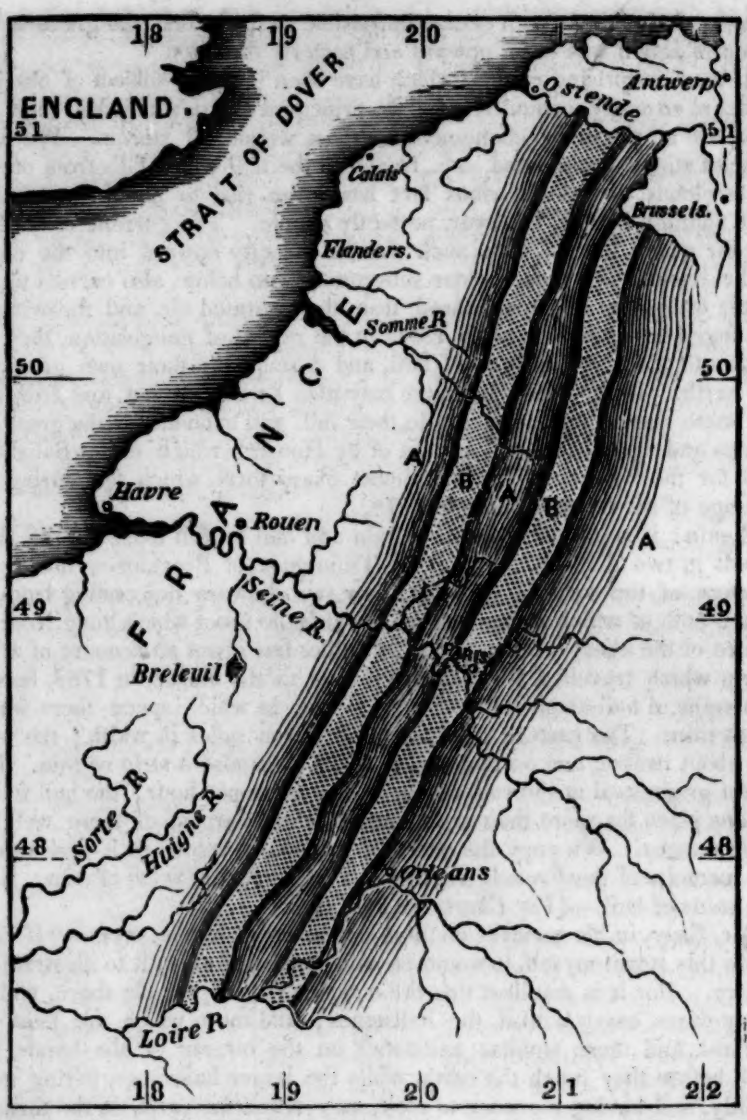
Professor Johnson in his description of the New Brunswick tornado, which occurred on the 19th of June, 1835, has called attention to the same curious fact. He says: "In a few cases, in which the ridge of a building lay in a northerly and southerly position, the eastern slope of roof was observed to be removed, or at least stripped of its shingles, while the western slope remained entire. Many buildings were likewise observed with holes in their roofs, whether shingled or tiled, but otherwise not much damaged, unless by the demolition of windows. These appearances clearly demonstrated the strong *upward* tendency of the forces by which they were produced, while the half unroofed houses, already mentioned, prove that the resultant of all the forces in action at the moment was not in a perpendicular to the horizon, but inclined to the east. Such a force would apply to the western slope of the roof some counteracting tendency, or relieve it from some portion of the upward pressure. Had there been no other facts to show the powerful rushing of currents upward, the above would, it is conceived, have been sufficient to settle the question, but taken in connection with the circumstance that roofs so removed, were carried to a great height, and their fragments distributed over a large extent along the subsequent path of the storm, that beds and other furniture were taken out of the upper stories of unroofed houses, that persons were lifted from their feet or dashed *upward* against walls; and that in one instance, a lad of eight or nine years old, was carried upward and onward with the wind, a distance of several hundred yards; and particularly that he afterward descended in safety, being prevented from a violent fall by the upward forces, within the range of which he still continued. In connection with

these and similar facts, it seems impossible to doubt that the greatest violence of action was in an upward and easterly direction."

If these surprising results, which have been long the subject of observation, are so easily accounted for on the principles laid down by Mr. Espy, so, also, are all the other phenomena of these wonderful storms. We often hear of sticks, grass, sand, &c., frozen in the hail which falls from one of these clouds, and the curious fact has given rise to much speculation. The solution is now, however, perfectly simple. The current of ascending air which dashes with such fearful velocity upward into the cloud, and carries with it these lighter substances from below, also carries up the water which has been condensed from the saturated air, and throwing all out together at the side of the cloud in the region of congelation, they are frozen together in the form of hail, and descend by their own gravity to the earth. Large sheets of water may also be thrown out and frozen in the same way, which, breaking in their fall, will account for the great hail stones and "pieces of ice" spoken of by Howard, which fell at Salisbury, and for the "pieces of ice" of almost every form which fell during the passage of the Orkney spout in 1818.

Again: it is not uncommon for rain and hail to fall from one of these clouds in two distinct veins. Mrs. Tillinghast of Providence, during the passage of the tornado of 1838, saw two showers descending from the cloud, both of which sloped inward towards the spout which hung from the centre of the cloud below; and M. Pouillet has given an account of a hail storm which travelled from the Pyrenees to the Baltic, in 1788, leaving two veins of hail about fifteen miles apart, in which space there was a great rain. The eastern vein was about seven miles in width; the western about twelve, and on the outside of both was also a strip of rain. This storm progressed at the rate of about fifty miles per hour; the hail fell in no one place for more than eight minutes: the largest of them weighed eight ounces. We copy the chart of this storm below, as it appeared in the memoirs of the French Academy. A. A. A. are veins of rain; B. B. are veins of hail.—(*For Chart, see next page.*)

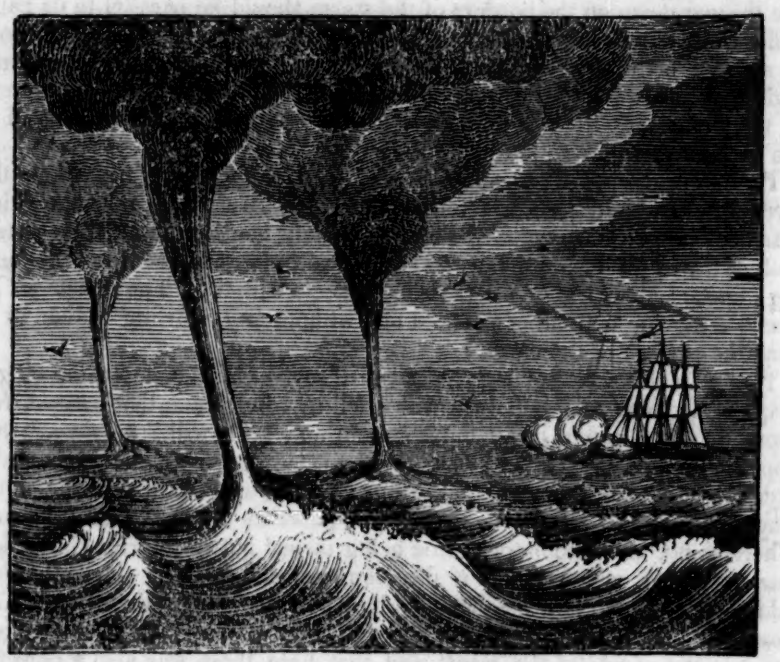
Mr. Espy, in his remarks on these singular phenomena, says:—"If I had made this storm myself, it would be said that I had made it to illustrate my theory. For it is manifest that the outspreading of the air above, will, in many cases, carry with it the hailstones; and those which are least the farthest, and these smaller hailstones on the outside of the bands, will melt before they reach the earth, while the larger hailstones, falling more swiftly, and having more ice to melt, may reach the earth in the form of hail. Thus the two veins of hail, and the rain on the outside of them, are manifestly accounted for; it is not quite so plain why it should only rain in the middle. Nevertheless, if we consider that the vortex moved with a velocity of fifty miles an hour from the southwest to the northeast, we will readily perceive that, as it would require perhaps twenty or thirty minutes for the drops of rain to be carried up to their greatest elevation, and to fall down to the earth, during which time the upmoving column would move forward twenty or twenty-five miles, neither hail nor rain could appear in front of the vortex, and as it could not fall in the middle of the spout, being prevented by the force of the ascending air, whatever fell between the two bands of hail must have descended in the hinder part of the ascending column, where it would not be likely to descend, on account of its upper part leaning forward."



These lofty clouds, whether formed over land or water, when the dew point is very near to the temperature of the air, appear to let down from their bases a tongue of vapor in the form of an inverted cone, which has been called a spout. Mr. Espy, in his explanation of this phenomenon, says:—"If, however, the air is very hot below, with a high dew point, and no cross currents of air above to a great height, then, when an upmoving current is once formed, it will go on and increase in violence as it acquires perpendicular elevation, especially after the cloud begins to form. At first the base of the cloud will be flat; but after the cloud becomes of great perpendicular diameter, and the barometer begins to fall considerably, as it will do from the specific levity of the air in the cloud, then the air will not have to rise so far as it did at the moment when the cloud began to form, before it reaches high enough to form cloud from the

cold of diminished pressure. The cloud will now be convex below, and its parts will be seen spreading outwards in all directions, especially on that side towards which the upper current is moving, assuming something of the shape of a mushroom. In the mean time, the action of the in-moving current below, and upmoving current in the middle, will become very violent, and if the barometer falls two inches under the centre of the cloud, the air, on coming in under the cloud, will cool by diminished pressure about ten degrees, and the base of the cloud will reach the earth, if the dew point was only eight degrees below the temperature of the air at the time the cloud began to form. The shape of the lower part of the cloud will now be that of an inverted cone with its apex on the ground, and when a little more prolonged and fully developed, it will be what is called a tornado if it is on land, and a water-spout if at sea."

Mr. Espy observes that there is a tendency in one of these clouds to form another, and the second has a tendency to form a third, and so on, till a number are in operation at the same time. The cause of this he very happily explains, but our limits will not allow us to follow him. Lieut. Ogden gives an account of seven of these spouts seen at one time, in the edge of the Gulf Stream, in May, 1820, which we copy, together with the annexed cut.



He says:—"The atmosphere was filled with low, ashy-colored clouds, some of which were darker underneath than others, and from these the water-spouts were generally formed, each one from a separate cloud. In some instances, they were perfectly formed before we observed them, but, in others, we could see a small portion of the cloud, at first extend downward, in the shape of an inverted cone, and then continue to descend, not very rapidly, until it reached the water. In other instances, however, we observed that this conical appearance of a portion

of the cloud did not always result in the perfect formation of a water spout. Several times we saw the cone project, continue for a short time stationary, then rise again slowly, and disappear in the clouds. This would, in some cases, occur two or three times to the same cloud; but, eventually, a larger and darker cloud would descend, and result in forming the visible spout, as above mentioned."

It will be seen at a glance, that the principle on which Mr. Espy explains the phenomena of nature in the production and development of storms, requires the convergence of the winds towards a common centre or line at the base of the cloud. In this he differs materially from Mr. Redfield, who has been at great pains to show that all storms are whirlwinds, and that the air moves around from right to left, or contrary to the hands of a watch. On this point there is still much controversy, but we have no room to enter on the merits of the discussion in this article, and shall content ourselves with exhibiting some of the facts on which Mr. Espy relies to establish this, one of the main pillars of his theory.

As the violent action which attends tornadoes is generally confined to very narrow limits, these storms seem to furnish the best means for testing the truth of these different theories. It is, we think, clear that if the wind moves around a common axis in the form of a whirl, that the trees which are thrown down on the borders of the storm should lie parallel to its path, while those which fall in the centre should be left in a transverse position, or at least be thrown outwards and forwards on one side, and outwards and backwards on the other. Now it would seem from a great variety of testimony that the trees in these violent storms are not prostrated in the above named direction.

President Bache, of Girard College, after having carefully taken the direction in which the trees fell in the New Brunswick tornado with a mariners' compass, says:—"I think it entirely made out, that there was a rush of air in all directions at the surface of the ground towards the moving meteor; this rush of air carrying objects with it. The effects all indicate a moving column of rarefied air, without any whirling motion at or near the surface of the earth."

Professor Loomis,* of the Western Reserve College, after drawing a map of the trees and buildings which fell in a hurricane that passed over Stowe in Ohio, comes to a similar conclusion. "It will," he says, "then appear from an inspection of the diagram, that in the midst of some disorder there was a degree of uniformity. Thus upon either border of the track the trees all incline towards some point in the centre of the track. There is not an example of a tree being turned outwards from the track, nor even one which lies in a direction parallel to it." He afterward adds,—"We have now established, by a fair deduction, that there was a powerful current of air from the opposite sides of the track towards some point in the centre of the track, and that here there was also a powerful current upward."

Professor Olmsted,† of Yale College, in his account of the New Haven tornado, which occurred on the 31st of July, 1839, says:—"The first great fact that strikes us, is, that all the trees and other objects that mark the direction of the wind which prostrated them, are, with a very few ex-

---

* Professor Loomis is not an advocate of Mr. Espy's theory.

† Professor Olmsted is not a believer in Mr. Espy's theory

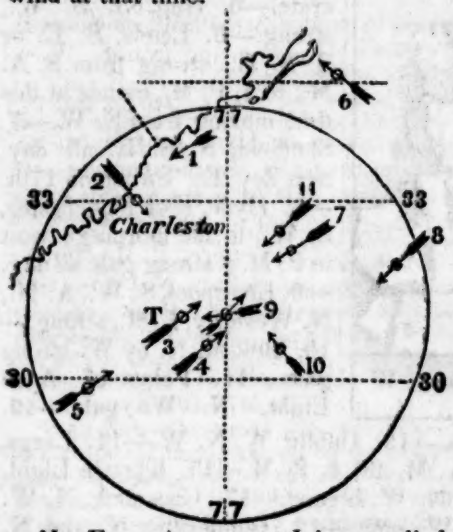
ceptions, turned inwards on both sides towards the centre of the track; while near the centre, the direction of the prostrate bodies is coincident with that of the storm."

Professor Forshay in his account of the Natchez tornado is equally in point. He declares that "the nearer the axis of the tornado, the nearer were their bearings parallel with that axis, and the more remote, the nearer perpendicular, while those that point to the direction from which the storm came, or cross a line perpendicular to the axis, *lie beneath* those that point in the forward direction of the same."

We may mention also, that the storm which occurred in France, of which we have given a chart in the former part of this article, could not possibly have been of the whirlwind character. Had the wind moved in a whirl, the hail which fell during its progress, must have been scattered over the whole area of the storm, and not been deposited in two veins for many miles as we have seen. If the whirlwind theory is correct, therefore, this storm at least must have been a wonderful exception to the general law.

But Mr. Espy does not rely alone on the direction of fallen trees in tornadoes to prove the centripetal course of the wind in storms. By means of observers in different sections, he has been enabled to surround some of our great northern storms, and has satisfied himself that the same law uniformly prevails. We can only make a few selections from the great number which we find recorded in the volume before us.

The following diagram represents a destructive storm which swept along our southern coast in the middle of August, 1837. The facts respecting it were collected by Col. Reid, but Mr. Espy finds that they maintain his own views, although recorded by an advocate of the whirlwind theory. The map represents the position of the storm as it was at noon, on the 18th of August, and the arrows are intended to show the direction of the wind at that time.

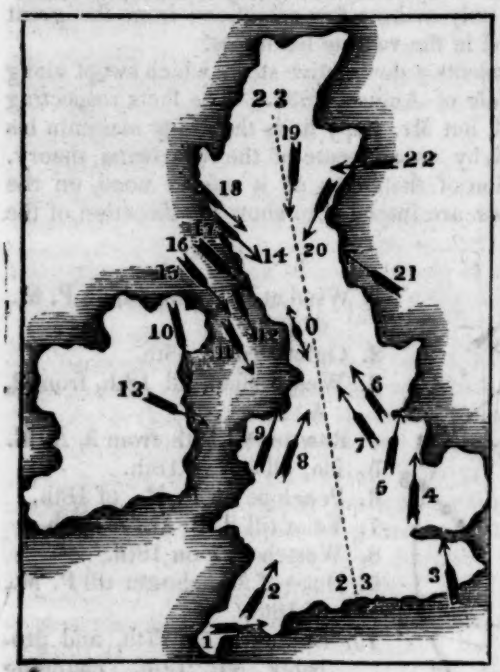


1. Wind at Wilmington, on P. M., of 18th.
2. Oglethorp on 18th.
3. West Indian, all 18th, from 2, A. M.
4. Rawlins all 18th, from 2, A. M.
5. Ida, all day of 18th.
6. Penelope on P. M., of 18th.
7. Yolof till 8, P. M., of 18th.
8. Westchester on 18th.
9. Duke of Manchester till P. M., of 18th.
10. Delaware on 17th, and probably on 18th, changing round to westward on 20th.
11. Cicero on 18th.

Mr. Espy observes: "I have culled out of this storm, that portion of time in which I find the greatest number of simultaneous observations, and I have exhibited on the annexed wood-cut the localities of all the ships within the boundaries of the storm, whose latitudes and longitudes could be ascertained with any degree of certainty, with arrows, exhibiting the

course of the wind. The time is noon of the 18th of August, 1837. At this time, the Duke of Manchester was only a few miles N. E. of the centre of this storm; for some time in the afternoon, the centre of the storm passed nearly over her, when the wind changed pretty suddenly S. W. At this time, and for some seven or eight hours both before and after, all those ships which were laboring in the most violent part of the storm, had the wind blowing towards a central space of no great magnitude. This settles the question of a violent centripetal motion of the wind in this storm, in conformity with the five previously examined, and also with the twelve investigated by the Joint Committee of the American Philosophical Society and Franklin Institute, and with not less than fourteen land-spouts which have already been examined, in all of which the trees were thrown with their tops inwards—and when any are thrown across each other, those which are underneath, are uniformly found to be thrown inwards and backwards, and those on the top, to be thrown inwards and forwards, just as they should be, if the wind blows inwards. Whereas, if the wind is centrifugal, many of the trees should have the tops thrown outwards on both sides of the path."

The following chart represents the course of the wind in the storm which occurred in Great Britain on the 17th of August, 1840.



0. Workington, changed at 10, A. M., from S. S. E. to N. N. W.—1. Plymouth, W. on 17th, S. W. on 16th.—2. Pill-Bristol, S. W., A. M.—3. London, southwardly, on 17th.—4. Lynn, heavy S. till noon, then S. W., more moderate.—5. Hull, S. S. W., strong.—6. Leeds, S. E. or S. S. E., strong from 8, A. M., to 1, P. M., clouds at this time moving from S. W.—7. Sheffield, S. S. E. all day, next day, E. Strong on 17th.—8. Hyde, near Manchester, S. W., in the morning; west in P. M.; strong gale all day.—9. Liverpool, S. W., A. M., N. Westerly, P. M., strong.—10. Belfast, N. by W. strong gale.—11. Point of Ayre Light, N. W. gale.—12. Corsewell Light, N. N. W., storm.—13. Dublin, W. N. W.—14. Largs, heavy from N. N. W. from 7, A. M. till 8, P. M.—15. Kyntire Light, N. W. gale.—16. Pladda Light, N. W. breeze.—17. Greenock, N. W. and N.—18. Lismore Light, N. W. gale.—19. Dumferline, N. and N. E. till 2, P. M. increasing to a gale.—20. Edinburgh, N. N. E. strong.—21. Berwick, S. by E. to S. E., strong.—22. Aberdeen, E. all day, strong.—23. Middle line of the storm on morning of 17th.

To the mariner it is of immense importance to discover the true law of storms. As his life and property will often depend upon the theory which

he has adopted, and which governs him in the control of his vessel when the element on which he sails is in dread commotion. If the course which storms pursue may be known, and it be true that the wind drives in on all sides towards a common centre, the seaman has an unerring guide for his conduct, which, if generally known, must greatly tend to the preservation of property and life. We have been informed by an American, who was present at Mr. Espy's lectures in Liverpool, that a gentleman of high standing, in his admiration of the very beautiful theory which the lecturer had been expounding, took occasion to observe, that if the masters of vessels which sailed from Liverpool on the memorable 6th of Jan., 1839, had known what Mr. Espy had clearly taught them that night, not one of them would have been lost, for they would not have put to sea in the face of such formidable indications of a storm. This observation will serve to show the importance of the subject to all who traverse the ocean.

It is known, that Mr. Espy himself has the greatest faith in the theory which he has put forth, and on several occasions has predicted the approach of a storm, and published his predictions in the papers before the storm appeared. If the doctrines which he teaches are true, this becomes a very simple matter. The barometer which falls in the centre of the storm, rises all around its borders and particularly before it, because as the cloud swells out at its sides, it presses together the surrounding atmosphere and thus increases its weight. The rise of the barometer then will indicate the presence of a storm in some region at no great distance, and if the wind at the same time sets in towards the point from which storms are known to come, it will scarcely be possible to mistake the result.

We are gratified to see that Mr. Espy's views have attracted much attention among the scientific men of the old world. The French Academy have given his theory the fullest sanction, and we cannot resist the temptation to place their report upon our pages.

Report of the Academy of Sciences, (Paris,) on the labors of J. P. Espy, *concerning Tornadoes, &c.*

Committee, Messrs. Arago, Pouillet, Babinet reporter.

"Messrs. Arago, Pouillet, and myself, have been appointed by the Academy to make a report to it upon the observations and theory of Mr. Espy, which have for their object the aerial meteors known by the names of storms, water-spouts and tornadoes, which cause so much destruction on land and sea in the vicinity of the Gulf of Mexico. These storms are produced in the same manner in every part of the globe, when a few given circumstances concur in one place.

"The labors of Mr. Espy have already considerably occupied the attention of the learned world, and may be considered under three different points of view. First, the facts which he has recognised and substantiated, and the proofs which support them; second, the physical theory, by which he explains them, and the conclusions which he deduces from that theory; third, the observations which are yet to be made according to this theory, based upon facts, and the practical rules which the mariner, the farmer, and the meteorologist will obtain from it; the two former for their own benefit, the latter for science, which is useful to all.

"The facts which result from the numerous documents which Mr. Espy has placed in the hands of the committee, are the following: the motion of the air in the meteor under consideration, called tornado or water-spout, if it is violent, and of small extent; a storm, if it covers many degrees of the earth's surface; the motion of the air, we say, is always convergent, either towards a single centre, when the tornado has a circular form and limited extent, or towards a diametrical line, when the tornado or storm is of a lengthened form, and extends over many hundred leagues.

"If the tornado is very small, in which case the violence of the motion of the air is greater, a cloud is frequently seen in the centre, whose point descends more and more until it touches the earth or sea. Water-spouts are small tornadoes, and the force of

these meteors in the south and east of the United States is such, that trees are carried up in the air, and the heaviest objects are overturned, displaced, and transported. Finally, we have only to call to mind the well known storms of the Antilles, which change even the form of the ground over which they pass. We will adopt the technical word tornado to designate the meteor in question, whatever may be its extent or violence. China and the neighboring seas, Central Africa, and the southwest part of the Indian Ocean, are, like the West Indies, the theatre of meteors of the same nature, and not less disastrous.

"In observing at the same moment the force and direction of the wind, which is shown by the overturned trees, the displaced movable objects, in a word, by the traces impressed upon the soil, Mr. Espy proves that in the same instant the motion of all parts of the air which is reached by the tornado is tending towards a central space, point, or line, so that if the wind on one side of the meteor blows towards the east, it blows with the same violence towards the west on the other side of the tornado, and frequently at a very short distance from the first place, whilst in the centre an ascending current is formed of astonishing rapidity, which, after having risen to a prodigious height, spreads out on every side to a certain limit, which we shall soon determine by the observations of the barometer. This ascending current loses its transparency at a certain height, and becomes a true cloud of the kind called cumulus, the base of which is horizontal, and whose height is determined by the temperature and humidity of the atmosphere. The central cloud of the tornado is constantly reproduced, in proportion as it is carried off by the rapid current of the centre; and, according to Mr. Espy, when rain or hail proceeds from this meteor, which is generally the case, it is the cold, caused by the expansion of the air carried into the higher regions of the atmosphere, which condenses the water. Electricity, when it appears in the tornado, is not, according to Mr. Espy, essential to the phenomenon.

"The existence of an ascending current of extreme violence once placed beyond doubt by the phenomena of the rising of the air, and its motion towards a centre or towards the great diameter of the oblong space occupied by the tornado, being well established by facts, Mr. Espy examines the progressive movement of the whole meteor, which is very slow, compared with the velocity of the wind in the mass of air which becomes at each instant a part of the tornado. Mr. Espy shows that near the latitude of Philadelphia, where cirrus clouds, very elevated as is known, move towards the east, the centre of the tornado moves almost always towards the east, as well as in Europe, where the west wind is predominant; whilst, in the inter-tropical regions, (Barbadoes, Jamaica, the north of the Indian Ocean,) the meteor moves towards the west or northwest, following the course of the trade winds. These assertions are also verified with regard to China and the Indian Ocean, according to the maps of Berghous. The barometer, in the centre of the meteor, is sometimes nearly 2.25 of an inch (sixty millimetres) lower than towards its border, and its limit is marked on all its outline by a closed curve, along which the barometer is found to be at its "normale" height, whilst, on the other side of this line, further from the centre, the barometer is observed to rise, which rise in small tornadoes is .08 of an inch, (two millimetres,) but which may be forty or forty-eight hundredths of an inch, (ten or twelve millimetres,) in very extended storms. If the centre of the tornado moves, (which may take place in any direction, when compared with the diametrical line,) and the effects produced by the motion are examined, it is always found that if the meteor has followed in its motion the line of its greatest diameter, the tree which fell the first, indicates a point anterior in the path of the meteor, and the tree which fell last, a posterior point. Thus it is constantly found that the trees which were overthrown with their tops turned towards positions anterior to the centre of the tornado, are covered by trees falling in the direction of the centre at a posterior period. In short, in this same case, the branches of the trees not overthrown growing on the side farthest from the opposite side of the line which the centre of the meteor takes, have followed the wind, and are twisted around the trunk of the trees.

"The circumstances favorable to the sudden production of a tornado, large or small, are, according to Mr. Espy, a warm and humid atmosphere, covering a country sufficiently level and extended, still enough to allow that part of the air which is accidentally the least dense, to rise to a great perpendicular height above the middle of the heated space which is charged with transparent vapor; moreover, in the higher regions, a cold and dry air, whose situation and especially whose density contrasts with that of the ascending current which dilates, cools, loses its transparency by the precipitation of its dampness, keeping notwithstanding a specific gravity less than that of the air which surrounds it, and by its expansion presenting the form of a mushroom or the head of a pine

with or without the prolongation or appendage towards the base, which appendage, cloudy and opaque, shows a space where the expansion and the cold are at their maximum, and where, consequently, the precipitation of vapor commences almost immediately above the ground or the surface of the sea.

"Such are then the principal points which Mr. Espy has obtained from numerous observations. The motion of the air towards the centre of the meteor, the depression of the barometer in the centre, the central ascending current, the formation of cloud at a certain height, and its circular expansion after this cloud has attained a prodigious height, an expansion accompanied with rain and hail, and finally, the motion of the whole meteor, *en masse;* these, I say, are the points which the extensive labors of Mr. Espy, his own observations, and the documents which he has collected, and which he intends publishing immediately in a special work, have placed beyond doubt, and which seem even to have triumphed over every objection, and to have rallied all opinions to his own.

"Let us now see the theory upon which he bases his observations, or rather which is based upon these facts well observed, well proven, and always reproduced in nature with similar circumstances.

"Mr. Espy thinks that if a very extended stratum of warm and humid air at rest, covers the surface of a region of land or sea, and that by any cause whatever, for example a less local density, an ascending current is formed in this mass of humid air, the ascending force, instead of diminishing in consequence of the elevation of the rising column, will increase with the height of the column, exactly as though a current of hydrogen was rising through the common air, which current would be pushed towards the top of the atmosphere, with a force and velocity in proportion to its height. This column of heated air may also be compared to that in chimneys and stove-pipes, of which the draught is in proportion to the height of the pipe containing the warm air. What then is the cause which renders the warm and humid ascending current, lighter in each of its parts than the air which is found at the same height with these different portions of the ascending column?

"This cause, according to the *sufficiently exact* calculations [*tres suffisament exact*] of Mr. Espy, is the constantly higher temperature which the ascending column retains, and which proceeds from the heat furnished by the partial condensation of the vapor mixed with the air, making this ascending column a true column of heated air, that is to say, of a lighter gas; for the weight of the water which passes into the liquid state, is far from compensating the excess of levity which proceeds from the more elevated temperature which the air preserves. (This weight only equals one fifth of the diminution of the weight in ordinary circumstances.)

"Thus, the higher the column is, the greater is the ascending force, and the rushing in of the surrounding air on all sides will be produced with more energy. To understand this effect better, let us consider a mass of warm and dry air rising in the midst of a colder atmosphere. In proportion as this air rises, it will expand, because of the less pressure which it will experience, and consequently become colder; it will arrive then quickly at an equilibrium both of temperature and pressure with a layer more or less elevated, which it will soon reach, and in which it will remain; but if this only cause of cold, expansion, is overbalanced by a cause of heat, for example the heat furnished by the vapor which is condensing, this air will remain constantly warmer than would have been necessary to attain the same temperature and pressure as the surrounding air. It will then be constantly lighter, and the higher the column, the greater the ascending force.

"The calculations of Mr. Espy show, without the slightest doubt, that the column of damp air regaining in temperature, by the condensing of the vapor, a part of the heat lost by expansion; this column always remains warmer than the air which is at the same height with each of its parts. Finally, Mr. Espy furnishes the exact data which are still wanting to science, by the experiments made upon the temperature which the air preserves by the effect of condensation of the vapor in a closed vessel which he calls a "nephelescope," and in which he compares the thermometrical fall produced in the air by a diminution of superincumbent pressure, to what takes place in nature, whether operating on dry, or employing damp, air. Notwithstanding the influence of the sides of the vessel, every time a light cloud is formed in the apparatus, the temperature undergoes a much less reduction than that which takes place when the point of precipitation of vapor has not been attained, or when the experiment is tried on dry air.

"The theory of Mr. Espy also accounts very well for the formation of a true cloud analogous to the cumulus with horizontal base, from the moment when the warm and damp air has acquired such an expansion, that the cold produced by it will cause a pre-

cipitation of water, and the base of the central cloud of the tornado, if it is horizontal, as is the case in the great meteors of this nature, should be lowered in proportion as the moist air which is carried up is more fully charged with vapor; this base, like that of the cumulus, being of necessity found at the point where the temperature of the ascending current becomes that of the *dew point*, which itself depends evidently upon the degree of dampness of the air. This theory further explains how, in the small tornadoes, whose violence is remarkable, an expansion takes place in the centre of the meteor, at a very small height, sufficient to condense vapor by the cold, and consequently to pro duce this kind of appendage which particularly distinguishes small tornadoes, or com mon water-spouts. Let us add that the calculations of Mr. Espy, upon the density of the warm column, its comparative levity, the ascending force of the current, the central depression which is the consequence of it, the rapidity with which the surrounding air rushes towards the place where the pressure is diminished, finally, all the conclusions drawn from the physical data of the phenomena, have been proved and ascertained with sufficient exactness to leave no doubt as to this portion of Mr. Espy's theory.

"One word remains to be said relative to the progressive movement of the meteor. This movement may depend upon an ordinary wind, which, imparting a common motion to the whole atmosphere, would not disturb the ascension of the column of moist air. But as these phenomena are produced suddenly in the midst of a great calm, Mr. Espy thinks that, in accordance with observed facts, the motion of the meteor should be attributed to the winds, which predominate in the upper part of the atmosphere, and that in modern latitudes, this motion should thus take place towards the east, whilst in the equatorial regions this motion should be directed towards the west, as the current of the trade winds. In a word, the slight surcharge which is owing to the spreading out of the air around the top of the meteor, accounts for the trifling elevation of the barometer, which the invasion of the tornado in every place presents, and can even, according to Mr. Espy, serve as a prognostic of it.* Another result is, that beyond the limits of the meteor, a feeble wind ought to be observed, as is the case, whose direction is opposite to that of the air which is violently rushing towards the centre of the tornado.

"The consequences which Mr. Espy deduces from this theory are, that in many localities, in Jamaica for example, the sea breezes cause a motion of the air perfectly analogous to that which constitutes a tornado, and that the results of it are the same, namely, rain and tempest at stated hours, on each day of summer. The same circumstances produce the same effects in other well-known localities, volcanic eruptions, great conflagrations of forests, with the favorable circumstances of tranquillity, heat, and moisture, ought also to produce ascending currents and rain. In the midst of all the theoretical deductions of Mr. Espy, it should be remarked, that a descending current of air never can communicate cold, for this current would become warm by compression in proportion as it should descend, and the meteorological temperature of many places sheltered from the ascending winds, is considerably augmented by this cause. The tempests of sand in many parts of Africa and Asia, although possessing much less violence, owing to the dryness of the heated air, accord perfectly with the theory of Mr. Espy, both as to quantity and the nature of their effects.

"Lastly, let us observe, that if, in tornadoes, the air is absorbed by the lower portion of the column, and not by the higher parts, it is, that the difference between the pressure of the heated column, and that of the surrounding air, is much more marked, as it is considered lower down, in the column of less density and equal elasticity, so that, in the case of an equilibrium, at the lowest point this difference would be precisely the total difference of the whole heated column to the whole column of air of the same height situated around the first. The observations and experiments which have been suggested to Mr. Espy by the study of the phenomena of tornadoes, and the theory he has given of them, merit the most serious attention. It is very evident that science would be much benefited by the establishment of a system of simultaneous observations of the barometer, thermometer, hygrometer, and especially of the anemometer, if at least they could be procured capable of giving with sufficient accuracy the intensity of the wind at the same time with its direction and the time of each variation of force. The influence which electricity exerts in this phenomenon, remains yet to be determined. Mr. Espy thinks that artificial causes—for example, great fires kindled in favorable circumstances of heat, of tranquillity, and humidity—can cause an ascending column of much less violence, the useful results of which would be on the one hand rain, and on the other the

* The reader will recollect that in the "Report," *tornado* is used to signify both large and small storms.

happy prevention of disastrous storms. It will be necessary to see in Mr. Espy's work itself, the further beneficial results to navigation from the views furnished by his theory.

"The different manners in which philosophers, by means of apparatus whose principle of action is the centrifugal force, have imitated water-spouts or small tornadoes, do not appear to us reconcilable with Mr. Espy's theory, which, based upon facts, equally refutes the idea of a whirling motion of the air in the tornado.*

"Here we should compare the theory of Mr. Espy with other theories, anterior or contemporaneous. The labors of Franklin, and of Messrs. Redfield, Reid, and Peltier, would furnish as many excellent observations and parts, or the whole of the phenomena, very well studied. But the extensive discussion which we should have to establish before deciding in favor of Mr. Espy, would lead us too far. Mr. Espy himself, as to the electrical part of the phenomenon, which, however, he regards as only accessory and secondary, acknowledges that his theory is less advanced and less complete than it is with regard to the phenomena of the motion and precipitation of the water, which are, according to him, the base of the production of the meteor.

"Finally, it is proved by the investigations of Mr. Espy, that it will be impossible hereafter to adduce in the mean [*normale*] state of the atmosphere, a descending current of air as a cause of cold, or an ascending current of dry air, a cause of heat. The applications of this theory present themselves in "climatology," but this principle especially discards the idea of explanation of the tornado by the centrifugal force, which would then cause the upper air to descend in the centre of the tornado, which air becoming heated by the augmented pressure, could not allow its own vapor to be precipitated, nor precipitate that of the air with which it came in contact.

CONCLUSION.

"In conclusion, Mr. Espy's communication contains a great number of well-observed and well-described facts. His theory, in the present state of science, alone accounts for the phenomena, and, when completed, as Mr. Espy intends, by the study of the action of electricity when it intervenes, will leave nothing to be desired. In a word, for physical geography, agriculture, navigation, and meteorology, it gives us new explanations, indications useful for ulterior researches, and redresses many accredited errors.

"The committee expresses then the wish that Mr. Espy should be placed by the government of the United States in a position to continue his important investigations, and to complete his theory, already so remarkable, by means of all the observations and all experiments which the deductions even of his theory may suggest to him, in a vast country, where enlightened men are not wanting to science, and which is besides, as it were, the home of these fearful meteors.

"The work of Mr. Espy causes us to feel the necessity of undertaking a retrospective examination of the numerous documents already collected in Europe, to arrange them and draw from them deductions which they can furnish, and more especially at the present period, when the diluvial rains, which have ravaged the southeast of France, have directed attention to all the possible causes of a similar phenomena. Consequently, the committee proposes to the academy to give its approbation to the labors of Mr. Espy, and to solicit him to continue his researches, and especially to try to ascertain the influence which electricity exerts in these great phenomena, of which a complete theory will be one of the most precious acquisitions of modern science.

"The conclusions of this report are adopted."

We have great satisfaction in adding, that Mr. Espy's book is in the very best style of the Boston publications. It is illustrated with numerous engravings; the typography is clean and neat; the paper fine; and, in short, it is every way worthy of the high standing of the publishers who have undertaken to bring it before the public. We commend it with confidence to all the lovers of science, satisfied that they will derive both pleasure and profit from the perusal.

---

* Philosophical Magazine, for June, 1841. Sir David Brewster says, "the theory of the rotary character of storms was first suggested by Col. Capper, but we must claim for Mr. Redfield the greater honor of having fully investigated the subject, and apparently established the theory upon an impregnable basis."

Art. IV.—SKETCHES OF DISTINGUISHED MERCHANTS.

NOTICE OF THE LIFE AND CHARACTER OF JOSEPH MAY.*

Lives of good men all remind us
We can make our lives sublime,
And departing, leave behind us
Footsteps on the sands of time;
Footsteps, that perhaps another,
Sailing o'er life's troubled main,
A forlorn and shipwrecked brother,
Seeing, shall take heart again.—Longfellow.

Mr. May belonged to a generation which has now almost wholly passed away. A few yet linger, but they will soon be all gone. He may be regarded as a type and specimen, not indeed of what was most brilliant and distinguished, but of what was most solid and worthy, stanch, honest, upright, and true in that generation. He was a native of Boston; his life was passed in the open sight of his fellow-citizens, and the testimony which we render is only the repetition of the common voice.

His integrity has never been questioned. It passed safely through the trial of adversity and failure in business—a trial which has proved too severe for the strength of many—and was as confidently relied upon after that change as before it. Perfect proof of this is given by the fact that he was called on to fill several offices, which, though not conspicuous, involved important trusts, and supposed implicit confidence, and which were held till repeated intimations of increasing age warned him to resign them.

His ideas and feelings respecting riches, though not perhaps peculiar, were certainly not common. He regarded the gift of property to one's children a questionable good. He has often said, that he knew many promising youth who were stinted in their intellectual and moral growth by the expectation of an inheritance that would relieve them from the necessity of labor. Every man, he would add, should stand upon his own feet, rely upon his own resources, know how to take care of himself, supply his own wants; and that parent does his child no good, who takes from him the inducement, nay, the necessity to do so.†

He thought it well and proper to engage in the pursuit of property in some honest and honorable occupation, as one of the means of unfolding

---

* In the Merchant's Magazine for July, 1841, we published a brief obituary of the late Joseph May, Esq., a merchant of Boston. We had previously requested the Rev. F. W. P. Greenwood, D. D., to prepare a sketch of his life and character, which through the inadvertence of our agent, was not received until quite recently. Several paragraphs of the present sketch, are from the sermon preached by Mr. Greenwood at Kings Chapel, Sunday, March the 7th, 1841, on the death of Mr. May; and the remainder in manuscript, was furnished by a member of the family of the deceased.—*Ed. Mag.*

† In a communication received from the Rev. S. J. May, is an anecdote which deserves preservation, as illustrative of the sentiments of his father.

"When I brought to him my last College bill receipted, he folded it with an emphatic pressure of his hand, saying as he did it: 'My son, I am rejoiced that you have gotten through; and that I have been able to afford you the advantages you have enjoyed. If you have been faithful, you must now be possessed of an education that will enable you to go anywhere; stand up among your fellow-men; and by serving them in one department of usefulness or another, make yourself worthy of a comfortable livelihood, if no more. If you have not improved your advantages, or should be hereafter slothful, I thank God that I have not property to leave you, that will hold you up in a place among men, where you will not deserve to stand.'"

the faculties, and forming and establishing the character. But he considered it most unworthy of a rational and moral being, to seek after riches as the *chief good*. He utterly despised avarice.

When about thirty-eight years of age, he was stopped in the midst of a very profitable business, in which he had already acquired a considerable fortune, by the result of an ill-advised speculation. He foresaw that he must fail, and at once gave up all his property, "even to the ring on his finger, for the benefit of his creditors." The sufferings which this disaster caused revealed to him that he had become more eager for property, and had allowed himself to regard its possession more highly, than was creditable to his understanding or good for his heart. After some days of deep depression, he formed the resolution, *never to be a rich man;* but to withstand all temptations to engage again in the pursuit of wealth. He adhered to this determination. He resolutely refused several very advantageous offers of partnership in lucrative concerns, and sought rather the situation he held, for more than forty years, in an insurance office, where he would receive a competence only for his family.

When in the midst of his family he seemed to have no anxieties about business, and was able to give his whole mind to the study of his favorite authors, the old English Classics, the best historians, and Paley and Priestley, of whom he was a great admirer.

He almost always read one or two hours in the morning, and as much in the evening. By the devotion of only this time to books, he was able in the course of his life to peruse many volumes of substantial value, of the contents of which his sound understanding and retentive memory enabled him to make readily a pertinent use.

In active benevolence and works of charity, he seems to have been indefatigable and unsurpassed. He was not able to bestow large donations on public institutions, but he was a valuable friend, promoter, and director of some of the most important of them.* His private charities are not to be numbered. Without much trouble he might be traced through every quarter of the city by the foot-prints of his benefactions. Pensioners came to the door of his house as they do in some countries to the gate of a convent. The worthy poor found in him a friend, and the unworthy he endeavored to reform. His aid to those in distress and need was in many cases not merely temporary and limited to single applications, but as extensive and permanent as the life and future course of its object. A family of fatherless and motherless and destitute children, bound to him by no tie but that of human brotherhood, found a father in him, and owe to him, under heaven, the respectability and comfort of their earthly condition. It would appear as if he had expressly listened to the exhortation of the son of Sirach, and had received the fulfilment of his promise: "Be as a father unto the fatherless, and as a husband unto their mother; so shalt thou be as the son of the Most High, and he shall love thee more than thy mother doth."†

---

* He was particularly interested in the establishment of the Asylum for the Insane, and the Massachusetts General Hospital. He felt sure that these were charities worthy of all he could do to promote them, and he labored for them heartily and effectually.

† "He never," observes his son, "seemed to feel displeased when asked to relieve the necessities of his fellow-beings, and therefore never hastily dismissed their claims, but carefully considered them, that he might give substantial and permanent aid.

"I cannot remember the time, when he was not planning for the benefit of several

As a friend and neighbor, his kind attentions and services were unremitting;—and how much of the happiness of our daily being is dependent on such attentions and services! He knew many persons, and suffered himself to forget none. If he had kept a list of them he could not have been more punctual in his remembrances; and he did keep a list of them in his friendly heart. But though he comprehended many in his generous regards, his strongest affections were still at home, reserved for the few who were nearest, and not dissipated or rendered shallow by the diffusion of his general charity. The stream of his benevolence was wide, but its central channel was deep.

His love of nature was ever fresh and warm. He watched the seasons as they rolled, and found in each much to excite his admiration and love of the great Creator and sovereign Disposer of all. The flowers, the birds, the sunshine, and the storm were objects of his continual notice, and of frequent remarks in his diary. His habit of walking early in the morning, often before sunrise, which he persisted in regularly until about two years since, secured to him a season of daily communion with the beauties of creation and its Author.

His love of children was ardent—and he inspired them with love for himself. It was his wish ever to have some children in his family. Their joyous laugh was music to his ear. After the death of his first born, he felt so lonely that he adopted a boy to supply the vacant place. And even within a few weeks of his decease, the son of a widow was brought by him to a home in his house.

On the services of the church and the ordinances of religion as administered at King's Chapel, he was a constant attendant. And this was because he viewed them in their proper light as the outward supports of order and virtue, and the good helps of piety, and not because he esteemed them as religion in themselves, or substitutes of religion: for if there ever was a man whose piety was practical, whose religion was life-religion, who could not understand or enter into any views of religion which were *not* practical, it was he.

He had borne many sorrows in the course of his protracted pilgrimage, and religion had supported him under them all. His belief in the sure mercies of God and promises of the Saviour was as firm and deeply rooted as the mountains. His faith in a future and better life was as sight. He saw its glories with his eyes, and the more distinctly as he drew nearer to them. Many expressions of his, simply and strongly declaratory of this sight-like faith, dwell, and will always dwell, on the memories of his relatives and most intimate friends.

His frame was so robust, his manner of living so regular, his mind so calm, his whole appearance so promising of endurance, that, aged as he was, even in his eighty-first year, I had thought he would yet continue for a season with us, and come up for many Sabbaths to our solemn assem-

---

poor or afflicted persons. The last few years of his life were peculiarly blessed by visits from numerous persons, or the children of persons whom he had befriended."

"There was a time when, as he afterward thought, he was not discriminating enough in his charities. The reading of Malthus on Population, and the discussions which arose upon the publication of that work, modified considerably his views of true benevolence. Prevention of poverty seemed to him both more merciful and practicable than the relief of it: and he was therefore continually suggesting to those who were on the verge of poverty, principles of economy and kinds of labor, by which they were enabled to put themselves into a comfortable estate."

blies. But it was not so to be. Till the Sunday before his death, he appeared as usual in his accustomed seat. For a few days afterward, gentle intimations of death were given—hardly alarming to his friends, and not at all so to him, though he perfectly comprehended their meaning. There was some aberration of mind, but no suffering of the body,—and then, to use the words of an old writer on the decease of a venerable prelate, "then he sweetly fell asleep in Christ, and so we softly draw the curtains about him."

A prominent place should be given, in a sketch of Mr. May's character, to his love of order, his methodical habits, his high estimate of the importance of punctuality. These were conspicuous traits, and they enabled him to accomplish a great deal of business, to attend to a variety of matters, which would have distracted a man without such habits, giving him, at the same time, a real though unobtrusive power of usefulness to his fellow-men. President Quincy has said in his history of Harvard College, that "there is no class of men to whom history is under so many obligations as to those who submit to the labor of keeping diaries." Mr. May performed a great deal of this sort of labor, because it enabled him to be so continually useful to all about him. His pocket and memorandum books were filled with items, that were often of great convenience, and sometimes of inestimable value to others. To this he was prompted by his spirit of practical benevolence, and was enabled to perform with comparatively little trouble by his habits of regularity and method.

His habits of order and strict method saved him a vast deal of anxious thought about his daily business cares and duties; he always knew exactly the state of his concerns. It required no effort of careful recollection to keep in mind any thing he ought to remember, for he could recur at once to his accounts and memoranda and find all as he left it; so exact was his method, that he could return to his office in utter darkness, find any key in use there, put his hand upon any book or bundle of papers he might wish to examine.

It may be well to mention another of his principles, which he deemed no more than a part of strict honesty. "Live within your income, whatever that may be," he would often say; "and then you will wrong no one, and will be always independent." "Should your income cease altogether, or be too narrow for your wants, make known your necessitous situation, and incur no debt but the debt of gratitude." "It is dishonest to borrow unless you foresee that you shall have the ability to repay the loan; and you should never obtain credit for any article, even a necessary of life, if you know not when or how you shall get the means to pay for it. In this case beg, rather than borrow."

Knowing as he did the trials and temptations of a merchant's life, he took a lively interest in young men who were just entering upon it. There are not a few who gratefully acknowledge, that to him they are indebted for habits and maxims that have been of essential service to them. Early rising, order, punctuality, living within one's income, the useful occupation of leisure time, he inculcated earnestly upon all. "Few men," he would say, "are so busy, none should be, as to have no time which they might devote to their moral culture, and the acquisition of useful knowledge. Life was not given to be all used up in the pursuit of what we must leave behind us when we die."

He used the world without abusing it. He saw much that was beauti-

ful and good here, and he indulged the feelings they naturally awakened. They were to his grateful heart intimations of the character of the heavenly Father, which should not be overlooked. He was sure that the Being who made all these things to gratify and delight us, is full of love; we have nothing to fear from him. If we are ever unhappy, miserable, it must be that we make ourselves so, by not following the course he has marked out for us, by not choosing to become what he has invited, and would enable us to become.

Death had no terrors for him; he often conversed about it as a solemn "event in the being of every man;" but his thoughts did not linger in the dark valley. He seemed to realize with Abraham Tucker that the body is but the garment of the soul, with which it really has little more necessary connection than with the house we may dwell in, the clothes we may wear, the tools we may use. He who gave us this body is able to give us another, and we should be willing to leave ourselves in his hands.

MERCANTILE LAW DEPARTMENT.

BANKRUPT LAW.

AN ACT TO ESTABLISH A UNIFORM SYSTEM OF BANKRUPTCY THROUGHOUT THE UNITED STATES.

Bankruptcy authorized—Exceptions—Initiatory proceedings on application for—Cases in which creditors may demand bankruptcy—Jury trial granted thereon.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there be, and hereby is, established throughout the United States, a uniform system of bankruptcy, as follows: All persons whatsoever, residing in any State, District or Territory of the United States, owing debts, which shall not have been created in consequence of a defalcation as a public officer; or as executor, administrator, guardian or trustee, or while acting in any other fiduciary capacity, who shall, by petition, setting forth to the best of his knowledge and belief, a list of his or their creditors, their respective places of residence, and the amount due to each, together with an accurate inventory of his or their property, rights, and credits, of every name, kind, and description, and the location and situation of each and every parcel and portion thereof, verified by oath, or, if conscientiously scrupulous of taking an oath, by solemn affirmation, apply to the proper court, as hereinafter mentioned, for the benefit of this act, and therein declare themselves to be unable to meet their debts and engagements, shall be deemed bankrupts within the purview of this act, and may be so declared accordingly by a decree of such court. All persons, being merchants, or using the trade of merchandise, all retailers of merchandise, and all bankers, factors, brokers, underwriters, or marine insurers, owing debts to the amount of not less than two thousand dollars, shall be liable to become bankrupts within the true intent and meaning of this act, and may, upon the petition of one or more of their creditors, to whom they owe debts amounting in the whole to not less than five hundred dollars, to the appropriate court, be so declared accordingly, in the following cases, to wit: whenever such person, being a merchant, or actually using the trade of merchandise, or being a retailer of merchandise, or being a banker, factor, broker, underwriter, or marine insurer, shall depart from the State, District, or Territory, of which he is an inhabitant, with intent to defraud his creditors; or shall conceal himself to avoid being arrested, or shall willingly or fraudulently procure himself to be arrested, or his goods and chattels, lands, or tenements, to be attached, distrained, sequester-

ed, or taken in execution; or shall remove his goods, chattels, and effects, or conceal them to prevent their being levied upon, or taken in execution, or by other process; or make any fraudulent conveyance, assignment, sale, gift, or other transfer of his lands, tenements, goods, or chattels, credits, or evidences of debt: *Provided, however*, That any person so declared a bankrupt, at the instance of a creditor, may, at his election, by petition to such court within ten days after its decree, be entitled to a trial by jury before such court, to ascertain the fact of such bankruptcy; or if such person shall reside at a great distance from the place of holding such court, the said judge, in his discretion, may direct such trial by jury to be had in the county of such person's residence, in such manner, and under such directions, as the said court may prescribe and give: and all such decrees passed by such court, and not so reexamined, shall be deemed final and conclusive as to the subject-matter thereof.

Future preferences void—Discharge in such case forbid—Limit and proviso—Cases of preferences since 1st January last, provided for—Married women and minors' rights preserved.

SEC. 2. *And be it further enacted*, That all future payments, securities, conveyances, or transfers of property, or agreements made or given by any bankrupt, in contemplation of bankruptcy, and for the purpose of giving any creditor, endorser, surety, or other person, any preference or priority over the general creditors of such bankrupts; and all other payments, securities, conveyances, or transfers of property, or agreements made or given by such bankrupt in contemplation of bankruptcy, to any person or persons whatever, not being a bona fide creditor or purchaser, for a valuable consideration, without notice, shall be deemed utterly void, and a fraud upon this act; and the assignee under the bankruptcy shall be entitled to claim, sue for, recover, and receive the same as part of the assets of the bankruptcy; and the person making such unlawful preferences and payments shall receive no discharge under the provisions of this act: *Provided*, That all dealings and transactions by and with any bankrupt, bona fide made and entered into more than two months before the petition filed against him, or by him, shall not be invalidated or affected by this act: *Provided*, That the other party to any such dealings or transactions had no notice of a prior act of bankruptcy, or of the intention of the bankrupt to take the benefit of this act. And in case it shall be made to appear to the court, in the course of the proceedings in bankruptcy, that the bankrupt, his application being voluntary, has, subsequent to the first day of January last, or at any other time, in contemplation of the passage of a bankrupt law, by assignments or otherwise, given or secured any preference to one creditor over another, he shall not receive a discharge unless the same be assented to by a majority in interest of those of his creditors who have not been so preferred: *And provided, also*, That nothing in this act contained shall be construed to annul, destroy, or impair any lawful rights of married women, or minors, or any liens, mortgages, or other securities on property, real or personal, which may be valid by the laws of the States respectively, and which are not inconsistent with the provisions of the second and fifth sections of this act.

Decree of bankruptcy divests the bankrupt and invests his assignee with his whole property—Certain articles excepted.

SEC. 3. *And be it further enacted*, That all the property, and rights of property, of every name and nature, and whether real, personal, or mixed, of every bankrupt, except as is hereinafter provided, who shall, by a decree of the proper court, be declared to be a bankrupt within this act, shall by mere operation of law, ipso facto, from the time of such decree, be deemed to be divested out of such bankrupt, without any other act, assignment, or other conveyance whatsoever; and the same shall be vested, by force of the same decree, in such assignee as from time to time shall be appointed by the proper

court for this purpose; which power of appointment and removal such court may exercise at its discretion, toties quoties; and the assignee so appointed shall be vested with all the rights, titles, powers, and authorities, to sell, manage, and dispose of the same, and to sue for and defend the same, subject to the orders and directions of such court, as fully, to all intents and purposes, as if the same were vested in, or might be exercised by, such bankrupt before or at the time of his bankruptcy declared as aforesaid; and all suits in law or in equity, then pending, in which such bankrupt is a party, may be prosecuted and defended by such assignee to its final conclusion, in the same way, and with the same effect, as they might have been by such bankrupt; and no suit commenced by or against any assignee shall be abated by his death or removal from office, but the same may be prosecuted or defended by his successor in the same office: *Provided, however,* That there shall be excepted from the operation of the provisions of this section the necessary household and kitchen furniture, and such other articles and necessaries of such bankrupt as the said assignee shall designate and set apart, having reference in the amount to the family, condition, and circumstances of the bankrupt, but altogether not to exceed in value, in any case, the sum of three hundred dollars; and, also, the wearing apparel of such bankrupt, and that of his wife and children; and the determination of the assignee in the matter shall, on exception taken, be subject to the final decision of said court.

Discharge may be granted by court, except creditors dissent—Final notice to creditors required—Right to discharge forfeited by fraud, &c.—Limitation of discharge—Case of perjury—Effect of discharge—In case creditors dissent, or court refuse to discharge—Jury trial granted, or appeal to circuit court.

Sec. 4. *And be it further enacted,* That every bankrupt, who shall bona fide surrender all his property, and rights of property, with the exception before mentioned, for the benefit of his creditors, and shall fully comply with and obey all the orders and directions which may from time to time be passed by the proper court, and shall otherwise conform to all the other requisitions of this act, shall (unless a majority in number and value of his creditors, who have proved their debts, shall file their written dissent thereto) be entitled to a full discharge from all his debts, to be decreed and allowed by the court which has declared him a bankrupt, and a certificate thereof granted to him by such court accordingly, upon his petition filed for such purpose; such discharge and certificate not, however, to be granted until after ninety days from the decree of bankruptcy, nor until after seventy days' notice in some public newspaper, designated by such court, to all creditors who have proved their debts, and other persons in interest, to appear at a particular time and place, to show cause why such discharge and certificate shall not be granted; at which time and place any such creditors, or other persons in interest, may appear and contest the right of the bankrupt thereto: *Provided,* That in all cases where the residence of the creditor is known, a service on him personally, or by letter addressed to him at his known usual place of residence, shall be prescribed by the court as in their discretion shall seem proper, having regard to the distance at which the creditor resides from such court. And if any such bankrupt shall be guilty of any fraud or wilful concealment of his property or rights of property, or shall have preferred any of his creditors contrary to the provisions of this act, or shall wilfully omit or refuse to comply with any orders or directions of such court, or to conform to any other requisites of this act, or shall, in the proceedings under this act, admit a false or fictitious debt against his estate, he shall not be entitled to any such discharge or certificate; nor shall any person, being a merchant, banker, factor, broker, underwriter, or marine insurer, be entitled to any such discharge or certificate, who shall become bankrupt, and who shall not have kept proper books of account, after the passing of this act; nor any person who, after the passing of this act, shall apply trust funds to his own use: *Provided,* That no discharge of any bankrupt under this act shall release or discharge any person who may be liable for

the same debt as a partner, joint contractor, endorser, surety, or otherwise, for or with the bankrupt. And such bankrupt shall at all times be subject to examination, orally, or upon written interrogatories, in and before such court, or any commission appointed by the court therefor, on oath, or, if conscientiously scrupulous of taking an oath, upon his solemn affirmation, in all matters relating to such bankruptcy, and his acts and doings, and his property and rights of property, which, in the judgment of such court, are necessary and proper for the purposes of justice; and if in any such examination, he shall wilfully and corruptly answer, or swear, or affirm, falsely, he shall be deemed guilty of perjury, and shall be punishable therefor, in like manner as the crime of perjury is now punishable by the laws of the United States; and such discharge and certificate, when duly granted, shall, in all courts of justice, be deemed a full and complete discharge of all debts, contracts, and other engagements of such bankrupt, which are proveable under this act, and shall be and may be pleaded as a full and complete bar to all suits brought in any court of judicature whatever, and the same shall be conclusive evidence of itself in favor of such bankrupt, unless the same shall be impeached for some fraud or wilful concealment by him of his property, or rights of property, as aforesaid, contrary to the provisions of this act, on prior reasonable notice specifying in writing such fraud or concealment; and if, in any case of bankruptcy, a majority, in number and value, of the creditors, who shall have proved their debts at the time of hearing of the petition of the bankrupt for a discharge as hereinbefore provided, shall at such hearing file their written dissent to the allowance of a discharge and certificate to such bankrupt, or if, upon such hearing, a discharge shall not be decreed to him, the bankrupt may demand a trial by jury upon a proper issue to be directed by the court, at such time and place, and in such manner, as the court may order; or he may appeal from that decision, at any time within ten days thereafter, to the circuit court next to be held for the same district, by simply entering in the district court, or with the clerk thereof, upon record, his prayer for an appeal. The appeal shall be tried at the first term of the circuit court after it be taken, unless, for sufficient reason, a continuance be granted; and it may be heard and determined by said court summarily, or by a jury, at the option of the bankrupt; and the creditors may appear and object against a decree of discharge and the allowance of the certificate, as hereinbefore provided. And if, upon a full hearing of the parties, it shall appear to the satisfaction of the court, or the jury shall find that the bankrupt has made a full disclosure and surrender of all his estate, as by this act required, and has in all things conformed to the directions thereof, the court shall make a decree of discharge, and grant a certificate, as provided in this act.

Bankrupt's property—Distribution directed—Contingent debts provided for—Right of action waived—Case of mutual debt—Power to disallow claims—Proof of debt to corporations—Appointment of commissioners.

SEC. 5. *And be it further enacted*, That all creditors coming in and proving their debts under such bankruptcy, in the manner hereinafter prescribed, the same being bona fide debts, shall be entitled to share in the bankrupt's property and effects, pro rata, without any priority or preference whatsoever, except only for debts due by such bankrupt to the United States, and for all debts due by him to persons who, by the laws of the United States, have a preference, in consequence of having paid moneys as his sureties, which shall be first paid out of the assets; and any person who shall have performed any labor as an operative in the service of any bankrupt shall be entitled to receive the full amount of the wages due to him for such labor, not exceeding twenty-five dollars: *Provided*, That such labor shall have been performed within six months next before the bankruptcy of his employer; and all creditors whose debts are not due and payable until a future day, all annuitants, holders of bottomry and respondentia bonds, holders of policies of insurances, sureties, endorsers, bail, or other persons, having uncertain or contingent demands against such bank-

rupt, shall be permitted to come in and prove such debts or claims under this act, and shall have a right, when their debts and claims become absolute, to have the same allowed them; and such annuitants and holders of debts payable in future may have the present value thereof ascertained, under the direction of such court, and allowed them accordingly, as debts in presenti; and no creditor or other person, coming in and proving his debt or other claim, shall be allowed to maintain any suit at law or in equity therefor, but shall be deemed thereby to have waived all right of action and suit against such bankrupt; and all proceedings already commenced, and all unsatisfied judgments already obtained thereon, shall be deemed to be surrendered thereby; and in all cases where there are mutual debts or mutual credits between the parties, the balance only shall be deemed the true debt or claim between them, and the residue shall be deemed adjusted by the set-off; all such proof of debts shall be made before the court decreeing the bankruptcy, or before some commissioner appointed by the court for that purpose; but such court shall have full power to set aside and disallow any debt, upon proof that such debt is founded in fraud, imposition, illegality, or mistake; and corporations to whom any debts are due, may make proof thereof by their president, cashier, treasurer, or other officer, who may be specially appointed for that purpose; and in appointing commissioners to receive proof of debts, and perform other duties, under the provisions of this act, the said court shall appoint such persons as have their residence in the county in which the bankrupt lives.

Jurisdiction of the United States district court over all cases of bankruptcy—Rules of proceeding—Fees.

SEC. 6. *And be it further enacted*, That the district court in every district shall have jurisdiction in all matters and proceedings in bankruptcy arising under this act, and any other act which may hereafter be passed on the subject of bankruptcy; the said jurisdiction to be exercised summarily, in the nature of summary proceedings in equity; and for this purpose the said district court shall be deemed always open. And the district judge may adjourn any point or question arising in any case in bankruptcy into the circuit court for the district, in his discretion, to be there heard and determined; and for this purpose the circuit court of such district shall also be deemed always open. And the jurisdiction hereby conferred on the district court shall extend to all cases and controversies in bankruptcy arising between the bankrupt and any creditor or creditors who shall claim any debt or demand under the bankruptcy; to all cases and controversies between such creditor or creditors and the assignee of the estate, whether in office or removed; to all cases and controversies between such assignee and the bankrupt, and to all acts, matters, and things to be done under and in virtue of the bankruptcy, until the final distribution and settlement of the estate of the bankrupt, and the close of the proceedings in bankruptcy. And the said courts shall have full authority and jurisdiction to compel obedience to all orders and decrees passed by them in bankruptcy, by process of contempt and other remedial process, to the same extent the circuit courts may now do in any suit pending therein in equity. And it shall be the duty of the district court in each district, from time to time, to prescribe suitable rules and regulations, and forms of proceedings, in all matters of bankruptcy; which rules, regulations, and forms, shall be subject to be altered, added to, revised, or annulled, by the circuit court of the same district, and other rules and regulations, and forms substituted therefor; and, in all such rules, regulations, and forms, it shall be the duty of the said courts to make them as simple and brief as practicable, to the end to avoid all unnecessary expenses, and to facilitate the use thereof by the public at large. And the said courts shall, from time to time, prescribe a tariff or table of fees and charges to be taxed by the officers of the court or other persons, for services under this act, or any other on the subject of bankruptcy; which fees shall be as low as practicable, with reference to the nature and character of such services

Proceedings must be in the district where the bankrupt resides—Notice to creditors to show cause—Evidence under oath—Proof of debt—Trial awarded in case of dispute—Case of perjury punishable.

SEC. 7. *And be it further enacted*, That all petitions by any bankrupt for the benefit of this act, and all petitions by a creditor against any bankrupt under this act, and all proceedings in the case to the close thereof, shall be had in the district court within and for the district in which the person supposed to be a bankrupt shall reside, or have his place of business at the time when such petition is filed, except where otherwise provided in this act. And upon every such petition, notice thereof shall be published in one or more public newspapers printed in such district, to be designated by such court at least twenty days before the hearing thereof; and all persons interested may appear at the time and place where the hearing is thus to be had, and show cause, if any they have, why the prayer of the said petitioner should not be granted; all evidence by witnesses to be used in all hearings before such court shall be under oath or solemn affirmation, when the party is conscientiously scrupulous of taking an oath, and may be oral or by deposition, taken before such court, or before any commissioner appointed by such court, or before any disinterested State judge of the State in which the deposition is taken; and all proof of debts or other claims, by creditors entitled to prove the same by this act, shall be under oath or solemn affirmation as aforesaid, before such court or commissioner appointed thereby, or before some disinterested State judge of the State where the creditors live, in such form as may be prescribed by the rules and regulations hereinbefore authorized to be made and established by the courts having jurisdiction in bankruptcy. But all such proofs of debts and other claims shall be open to contestation in the proper court having jurisdiction over the proceedings in the particular case in bankruptcy; and as well the assignee as the creditor shall have a right to a trial by jury, upon an issue to be directed by such court, to ascertain the validity and amount of such debts or other claims; and the result therein, unless a new trial shall be granted, if in favor of the claims, shall be evidence of the validity and amount of such debts or other claims. And if any person or persons shall falsely and corruptly answer, swear, or affirm, in any hearing or on trial of any matter, or in any proceeding in such court in bankruptcy, or before any commissioner, he and they shall be deemed guilty of perjury, and punishable therefor in the manner and to the extent provided by law for other cases.

Jurisdiction of the circuit court in cases against the assignee of a bankrupt—Limitation against such suit.

SEC. 8. *And be it further enacted*, That the circuit court within and for the district where the decree of bankruptcy is passed, shall have concurrent jurisdiction with the district court of the same district of all suits at law and in equity which may and shall be brought by any assignee of the bankrupt against any person or persons claiming an adverse interest, or by such person against such assignee, touching any property or rights of property of said bankrupt transferable to, or vested in, such assignee; and no suit at law or in equity shall, in any case, be maintainable by or against such assignee, or by or against any person claiming an adverse interest touching the property and rights of property aforesaid, in any court whatsoever, unless the same shall be brought within two years after the declaration and decree of bankruptcy, or after the cause of suit shall first have accrued.

Sales of property—Disposition of proceeds—Bonds required of assignee.

SEC. 9. *And be it further enacted*, That all sales, transfers, and other conveyances, of the assignee of the bankrupt's property and rights of property, shall be made at such times and in such manner as shall be ordered and appointed by the court in bankruptcy; and all assets received by the assignee in money shall, within sixty days afterward, be paid into the court, subject to its order respecting its future safe-keeping and disposition; and the court may require of such assignee a bond, with at least two sureties, in such sum as it may deem

proper, conditioned for the due and faithful discharge of all his duties, and his compliance with the orders and directions of the court; which bond shall be taken in the name of the United States, and shall, if there be any breach thereof, be sued and sueable, under the order of such court, for the benefit of the creditors and other persons in interest.

Prompt proceedings directed—Dividends of assets at least every six months—Notice thereof required—Suits at law not to postpone dividends—Proceedings to be closed in two years—Claims not proved in time.

SEC. 10. *And be it further enacted*, That in order to ensure a speedy settlement and close of the proceedings in each case in bankruptcy, it shall be the duty of the court to order and direct a collection of the assets, and a reduction of the same to money, and a distribution thereof at as early periods as practicable, consistently with a due regard to the interests of the creditors: and a dividend and distribution of such assets as shall be collected and reduced to money, or so much thereof as can be safely so disposed of, consistently with the rights and interests of third persons having adverse claims thereto, shall be made among the creditors who have proved their debts, as often as once in six months from the time of the decree declaring the bankruptcy; notice of such dividends and distribution to be given in some newspaper or newspapers in the District, designated by the court, ten days at least before the order therefor is passed; and the pendency of any suit at law or in equity, by or against such third persons, shall not postpone such division and distribution, except so far as the assets may be necessary to satisfy the same; and all the proceedings in bankruptcy in each case shall, if practicable, be finally adjusted, settled, and brought to a close, by the court, within two years after the decree declaring the bankruptcy. And where any creditor shall not have proved his debt until a dividend or distribution shall have been made and declared, he shall be entitled to be paid the same amount, pro rata, out of the remaining dividends or distributions thereafter made, as the other creditors have already received, before the latter shall be entitled to any portion thereof.

Assignee may, by order of court, redeem mortgaged or hypothecated property Compound doubtful claims, &c.

SEC. 11. *And be it further enacted*, That the assignee shall have full authority, by and under the order and direction of the proper court in bankruptcy, to redeem and discharge any mortgage or other pledge, or deposite, or lien upon any property, real or personal, whether payable in presenti or at a future day, and to tender a due performance of the conditions thereof. And such assignee shall also have authority, by and under the order and direction of the proper court in bankruptcy, to compound any debts, or other claims, or securities due or belonging to the estate of the bankrupt; but no such order or direction shall be made until notice of the application is given in some public newspaper in the district, to be designated by the court, ten days at least before the hearing, so that all creditors and other persons in interest may appear and show cause, if any they have, at the hearing, why the order or direction should not be passed.

A person once discharged, excepted from the benefit of another discharge—Unless, &c.

SEC. 12. *And be it further enacted*, That if any person, who shall have been discharged under this act, shall afterward become bankrupt, he shall not again be entitled to a discharge under this act, unless his estate shall produce (after all charges) sufficient to pay every creditor seventy-five per cent. on the amount of the debt which shall have been allowed to each creditor.

Proceedings to be recorded—Office copy—Fees.

SEC. 13. *And be it further enacted*, That the proceedings in all cases in bankruptcy shall be deemed matters of record; but the same shall not be required to be recorded at large, but shall be carefully filed, kept, and numbered, in the office of the court, and a docket only, or short memorandum thereof, with the numbers, kept, in a book by the clerk of the court; and the clerk of the court, for affixing his name and the seal of the court to any form, or certifying a copy thereof, when required thereto, shall be entitled to receive, as compensation,

the sum of twenty-five cents and no more. And no officer of the court, or commissioner, shall be allowed by the court more than one dollar for taking the proof of any debt or other claim of any creditor or other person against the estate of the bankrupt; but he may be allowed, in addition, his actual travel expenses for that purpose.

Regulations in relation to partnerships.

SEC. 14. *And be it further enacted*, That where two or more persons, who are partners in trade, become insolvent, an order may be made in the manner provided in this act, either on the petition of such partners, or any one of them, or on the petition of any creditor of the partners; upon which order all the joint stock and property of the company, and also all the separate estate of each of the partners, shall be taken, excepting such parts thereof as are herein excepted; and all the creditors of the company, and the separate creditors of each partner, shall be allowed to prove their respective debts; and the assignees shall also keep separate accounts of the joint stock or property of the company, and of the separate estate of each member thereof; and after deducting out of the whole amount received by such assignees, the whole of the expenses and disbursements paid by them, the nett proceeds of the joint stock shall be appropriated to pay the creditors of the company, and the nett proceeds of the separate estate of each partner shall be appropriated to pay his separate creditors: and if there shall be any balance of the separate estate of any partner, after the payment of his separate debts, such balance shall be added to the joint stock, for the payment of the joint creditors; and if there shall be any balance of the joint stock, after payment of the joint debts, such balance shall be divided and appropriated to and among the separate estates of the several partners, according to their respective rights and interests therein, and as it would have been if the partnership had been dissolved without any bankruptcy; and the sum so appropriated to the separate estate of each partner shall be applied to the payment of his separate debts; and the certificate of discharge shall be granted or refused to each partner, as the same would or ought to be if the proceedings had been against him alone under this act; and in all other respects the proceedings against partners shall be conducted in the like manner as if they had been commenced and prosecuted against one person alone.

Decree of bankruptcy and copy of order of appointments of assignees to be recited in all deeds for land sold by assignees—Such deeds confirmed.

SEC. 15. *And be it further enacted*, That a copy of any decree of bankruptcy, and the appointment of assignees, as directed by the third section of this act, shall be recited in every deed of lands belonging to the bankrupt, sold and conveyed by any assignees under and by virtue of this act; and that such recital, together with a certified copy of such order shall be full and complete evidence both of the bankruptcy and assignment therein recited, and supersede the necessity of any other proof of such bankruptcy and assignment to validate the said deed; and all deeds containing such recital, and supported by such proof, shall be as effectual to pass the title of the bankrupt, of, in, and to the lands therein mentioned and described to the purchaser, as fully, to all intents and purposes, as if made by such bankrupt himself, immediately before such order.

District of Columbia and territory cases.

SEC. 16. *And be it further enacted*, That all jurisdiction, power, and authority, conferred upon and vested in the district court of the United States by this act, in cases in bankruptcy, are hereby conferred upon and vested in the circuit court of the United States for the District of Columbia, and in and upon the supreme or superior courts of any of the Territories of the United States, in cases in bankruptcy, where the bankrupt resides in the said District of Columbia, or in either of the said Territories.

This act to take effect 1st February, 1842.

SEC. 17. *And be it further enacted*, That this act shall take effect from and after the first day of February next.

Approved. August 19th, 1841.

THE BOOK TRADE.

1.—*America; Historical, Statistical, and Descriptive.* By J. S. Buckingham, Esq. 2 vols. 8vo. pp. 514, 516. New York: Harper & Brothers. 1841.

The opinion pretty generally expressed by the public and the press in relation to these Travels, is, we think, correct—that, setting aside the author's egotism, prolixity, and occasional mistakes, he has made a very readable book, containing much interesting and useful matter, collected from a great variety of sources, and evincing, so far as English prejudice will allow, an honest desire to be just and impartial. The fact that all foreigners look upon us, our country, and our institutions, through the medium of principles and opinions formed under a system of things but little in harmony with our own, should moderate our indignation and surprise at the seeming unfairness of many of their representations, while this very circumstance may enable them to see our real defects in a truer light than they can appear to ourselves. This remark we would apply to Mr. Buckingham's book, in which, if there be some things which startle us by their erroneousness or absurdity, there are others which we may turn to no small advantage, in discovering and correcting actual faults of character. Besides an excellent portrait, the work is embellished with a number of engravings.

2.—*Facts in Mesmerism, with Reasons for a dispassionate Inquiry into it.* By the Rev. Chauncy Hare Townsend, A. M., late of Trinity Hall, Cambridge. 1 vol. 12mo. pp. 388. New York: Harper & Brothers. 1841.

This is a startling book, and whether the reader be a believer in animal magnetism or not, he will find in it much to excite his wonder, and puzzle his reason. As for ourselves, we have never had much faith in the marvellous stories told in relation to this subject, being inclined rather to look upon it as a mixture of jugglery and delusion; but we must confess that the Rev. author relates things hard to be accounted for or understood. There is a great appearance of fairness throughout the work, and the character of the author would seem to forbid our discrediting his facts. Our readers must *buy* the book and judge for themselves. It contains, as Bulwer observes, "experiments as marvellous as any of the theories of the astrologer."

3.—*The Dahlia, or Memorial of Affection, for* 1842. Edited by a Lady. 18mo. pp. 180. New York: James P. Giffing. 1841.

This is really one of the prettiest annuals designed for the approaching Christmas and New Year gifts we have seen. The engravings are well done, and good taste and judgment are evinced in the selection of the subjects. The tales, sketches, and poems, are from well known and favorite authors, both in this country and England, pure in sentiment, and chaste and beautiful in style. Though designed for young persons, it contains much that will gratify and improve the more matured mind of the adult.

4.—*The Peasant and the Prince.* By Harriet Martineau. New York: D. Appleton & Co. 18mo. pp. 174. 1841.

5.—*The Poplar Grove; or Little Harry and his Uncle Benjamin: a tale for youth.* By Esther Copley, author of "Early Friendships," &c. D. Appleton & Co. 18mo. pp. 178. 1841.

These excellent books are the last published of Appleton's series of "Tales for the People and their children." The intellectual character of the series, thus far, is much above the ordinary standard, and their moral tendency unexceptionable.

6.—*The Siege of Derry, or Sufferings of the Protestants: a tale of the Revolution.* By Charlotte Elizabeth. New York: John S. Taylor & Co. 12mo. pp. 292. 1841.

COMMERCIAL REGULATIONS.

RUSSIAN MONEYS—WEIGHTS—MEASURES—EXCHANGE—BILLS OF EXCHANGE.

In Russia, an imperial manifest, dated 1st of July, 1839, re-established the silver standard of currency in that country as the lawful medium for the valuation of property, fixing the 1st of January, 1840, as the time from which the new system should be fully and generally adopted throughout the empire, in lieu of the old bank note or pape. roubles; the latter were, by the same decree, to remain in circulation as a mere auxiliary medium of payment, at an invariable rate of 3½ roubles bank notes for 1 rouble silver. The amount of these old bank notes not having in latter times been increased, and proving rather insufficient for supplying the wants of the country of a convenient paper medium of circulation, new additional bank notes representing silver, (probably intended to supersede the old ones by degrees,) were created by establishing a silver-deposit office at the Commercial Bank of St. Petersburgh, under the superintendence and management of a mixed board of directors, composed of government bank officers and respectable first-class merchants, which is empowered to receive voluntary deposits of specie, and to issue in lieu thereof silver-deposit-cash-notes, payable to bearer on demand, the deposits received having to be held by the board untouched, at the constant disposal of the notes so issued. This deposit-cash began its operations in January, 1840, and has since been very busy receiving deposits as well as exchanging notes for specie. These important decrees, by which the Russian monetary and bank note system has probably been raised to an insuperable degree of perfection, having produced an entire change in commerce, relative to matters of account, and the future calculation of goods by the silver standard, at courses of exchange in foreign money, now quoted for the silver rouble, have—along with the conversion of all duties, rates, and expenses of merchandise into silver—given rise to the publication in London, of the "Russia Trader's Assistant," from which we derive for publication in our magazine the following practical information, concerning *Russian moneys, weights and measures, the course of exchange, bills of exchange, &c.* The most implicit confidence may be placed in the information, as the work comes out under the sanction of the British Factory at St. Petersburgh, and is approved by the leading merchants of that city.

RUSSIAN MONEYS.

1. The Silver Standard—2. Silver Coins—3. Gold Coins—4. Copper Coins—5. Old Bank Notes—6. New Bank Notes—7. Platina Coins—8. Fixed Value of Foreign Gold Coins in Circulation—9. Fixed Value of Foreign Silver Coins in Circulation.

1. The imperial manifest of 1st July, 1839, enacts:—That all property shall be valued, the prices of merchandise shall be fixed, and books and accounts shall be kept in the coined Silver Rouble of 100 Copecks, as the standard of lawful money.

2. The coined silver rouble contains 4 zolotniks 21 parts Russian weight of pure silver, with $61\frac{14}{25}$ parts alloy. The other silver coins by the same standard are pieces of 150, 75, 50, 30, 25, 20, 15, 10, and 5 copecks each. Besides this, the following lawful moneys circulate as legal tenders of payment, viz:—

3. The coined gold rouble, containing 27 parts pure gold, in coined pieces of 10, 5, 3, and 1 rouble each; and 100 roubles of gold are enacted to be equal to 103 roubles of silver.

4. The coined copper money in pieces of 10, 5, 2, 1, and ½ copecks each, of which 350 copecks are enacted to be reckoned equal to one silver rouble.

5. The *old* bank notes or paper roubles, called "Imperial Bank Assignments," representing the copper coin, in notes of 200, 100, 50, 25, 10, and 5 roubles each; and 3½ such roubles are enacted to be invariably equal to one silver rouble.

6. The *new* bank notes, representing silver roubles, to be from the 1st January, 1840, issued by a special deposit bank against cash paid in as deposit, payable to bearer on demand without interest; and the deposits made are to be kept untouched, at the constant disposal of the notes issued.

7. The coined platina money in pieces of 12, 6, and 3 roubles each, equivalent to the same number of silver roubles. A platina piece of 3 roubles contains 2 zolotniks 41 parts of pure platina metal.

8. The following foreign gold coins may be taken in payment at the undermentioned prices, fixed by government, viz:—

		Standard Weight. z. p.	z. p.	*Silver.*
French	40 francs pieces	3 2 not less than	3 1 assay $\frac{86}{96}$ fine at	9 Ro. 84 Co.
"	20 "	1 49	1 48 do.	4 " 92 "
Sardinian	20 lires pieces	1 49	1 48 do.	4 " 92 "
Prussian	10 dollars pieces	3 12	3 11 do.	10 " 23½ "
"	5 " "	1 54	1 53 do.	5 " 11½ "
Hanoverian	10 " "	3 10	3 9 do.	10 " 17¾ "
"	5 " "	1 53	1 52 do.	5 " 8½ "
Saxon	10 " "	3 10	3 9 do.	10 " 17¾ "
"	5 " "	1 53	1 52 do.	5 " 8½ "
Spanish doubloons		6 32	6 31 $\frac{82}{96}\frac{1}{2}$	19 " 92½ "
Austrian sovereigns d'or		2 58	2 57 $\frac{87}{96}\frac{1}{8}$	8 " 69¾ "

9. The following foreign silver coins may likewise be taken in payment at the undermentioned rates, fixed by government, viz:—

		z. p.		*Silver.*
Dutch dollars	standard weight,	6 54 assay $\frac{82}{96}\frac{1}{8}$	fine at	1 Ro. 33½ Co.
French 5 francs pieces	"	5 81 $\frac{86}{96}$		1 " 24 "
Prussian dollars	"	5 21 $\frac{71}{96}$		– " 91¼ "
Saxon and Bavarian dollars	"	6 53 $\frac{79}{96}$		1 " 27¾ "
Swedish specie dollars	"	6 82 $\frac{83}{96}\frac{3}{4}$		1 " 41½ "
Danish specie dollars	"	6 72 $\frac{83}{96}$		1 " 38¼ "
Brabant dollars	"	6 83 $\frac{82}{96}$		1 " 39 "
Austrian dollars	"	6 55 $\frac{79}{96}$		1 " 28¼ "
Spanish piastres	"	6 29 $\frac{85}{96}\frac{1}{2}$		1 " 33 "
Pieces of 20 Creutzers	"	1 48 $\frac{43}{96}$		– " 17¾ "

N. B.—An assay of $\frac{86}{96}$ means: that in 96 zolotniks, or 1 pound of bullion, there is 86 zol. of pure gold or silver; the rest being base metal or alloy of no value.

RUSSIAN WEIGHTS.

10. The Standard of Weight compared with British Weights.

10. The standard of weight is the Russian pound of 32 loths, or 96 zolotniks (gold grains;) a zolotnik being subdivided into 96 parts. 1000 Russian pounds are equal to 1095,9 pounds British imperial troy, and 903 pounds imperial avoirdupois weight. Merchandise is also sold by the berkowetz of 400 lb., equal to 361,2 lb. imperial a. d. p.; or by the pood of 40 lb., equal to 36,12 lb. imperial a. d. p.; 10 poods making 1 berkowetz. Accordingly,

1 ton	of 2240 lb. imperial a. d. p.	should weigh	62 poods	$\frac{8}{9}$ lb. Russian.
1 cwt.	of 112		3	4 "
1 quar.	of 28		–	31 "

And this is the proportion assumed by the customhouses in Russia, for declaring the equivalency of British weight in bills of entry of goods imported.

RUSSIAN MEASURES.

11. The Standard of Long Measure compared with British, and the Deal Measure—12. The Standard of Liquid Measure, compared with British—13. The Standard of Dry or Corn Measure, compared with British.

11. The standard of long measure is the arshine of 16 vershoks; 3 arshines making 1 fathom or sajène. 1000 Russian arshines are equal to 778 British yards, or 1000 yards equal to 1286 arshines, which is the proportion assumed by the Russian customhouses. Deals and battens are measured by the British foot; 72 feet running measure of deal, 3 inches thick, and 11 inches wide, making one standard dozen, and 10 dozens 1 standard hundred.

12. The standard of liquid measure is the Russian vedro of 4 chetveriks, at 8 krushkas each; a botchka or cask contains 13½ ankers, or 40 vedros, or 160 chetveriks, or 320 krushkas. 1000 Russian vedros are equal to 2710 imperial gallons, or 1000 imperial gallons to 369 vedros, which is the proportion assumed at the customhouses.

13. The standard of dry or corn measure is the chetverik; 8 chetveriks making 1 chetvert, by which grain is sold. 1000 chetveriks being of the same solid contents as 720 bushels, 1000 chetverts should measure out 720 imperial quarters, which is the proportion assumed at the customhouses; but linseed and wheat are seldom found to yield more than 700, at the most 710 quarters from the ship's side; while oats generally render 710 quarters, or thereabouts.

EXCHANGE.

14. Foundation of the Current Exchange—15. Foundation of the intrinsic par—16. Shows how the intrinsic par is to be found—17. Value of Russian Coin sent to London—18. Value of British Gold sent to St. Petersburgh—19. Value of British Silver in Russia—20. Calculation of Silver in Bars, imported from Hamburg into St. Petersburgh—21. Account of Nett Proceeds of Hamburg Silver, realized at St. Petersburgh—22. Influence of the Balance of Trade on the Exchange, with quotations—23. Table of the Value of £1 to £100,000 in Russian Silver, and of S. Ro. 1 to 100,000 in British Pence, at progressive Courses of Exchange—24. Use of the Table in Calculations—25. Table of Equivalents of the Old Bank Notes and New Silver Prices.

14. The course of exchange in Russia, for bills drawn there against ready cash, payable in London at three months after date, is, by private contract between the drawers and remitters, fixed and quoted at so many pence sterling, (gold,) for one rouble silver; and founded on the par of exchange between both countries. It fluctuates periodically above or under that par, according to the circumstances, that alternately influence the bill market; the demand for bills preponderating at one, and the demand for money at another time, thus producing a *current* exchange, or market price of the silver rouble in British sterling pence, on which the cost of goods bought in Russia, and the nett proceeds of goods sold there, are dependant.

15. In order to ascertain whether the *current* exchange be advantageous or disadvantageous to the British merchant, in either of the above-mentioned cases, it is in the first place necessary to know the intrinsic par, or metallic equivalency of the standard currencies of both countries; and then to take into account the loss or saving of time, occasioned by the usance; together with the saving of risk and expenses that would be incurred by the transmission of bullion, or of sums of coined money of the one country, for converting it into the coined lawful money of the other, where the payment has to be made.

16. The standard of currency in Great Britain being the pound sterling of gold, coined as a sovereign; and that in Russia, the coined rouble of silver; the intrinsic par between both is found by the following proportions, viz:—a troy pound of mint gold, containing $46\frac{2}{10}$ sovereigns of $\frac{11}{12}$ fine gold, is equal to 80 zol. 28¾ parts, Russian weight of contents of fine gold; 27 zol. fine, give one rouble gold in Russia and 100 roubles gold are there, by law, equal to 103 roubles silver; the problem of calculation accordingly stands thus:—

			1	rouble silver, how many pence?
103	roubles silver	:	100	roubles gold.
1	rouble gold	:	27	parts fine gold.
7708¾	parts fine gold	:	$46\frac{3}{4}\frac{3}{6}$	sovereigns.
1	sovereign	:	240	pence sterling.

=Intrinsic par $38\frac{9}{6}\frac{9}{4}$ pence.

17. If silver roubles in Russia were exchanged there for gold, and the gold were sent over to London for conversion into British sovereigns, for payment to the British merchant, this operation would involve the loss of at least *one* month's interest, with the expenses of commission, premium of insurance, freight, charges, and allowance for coinage: assuming these charges to amount together to 2 per cent or $\frac{4}{6}\frac{9}{4}$d. per rouble; and deducting so much from the intrinsic value, found to be $38\frac{9}{6}\frac{9}{4}$d. in gold, the remaining nett proceeds of a silver rouble would only be 37½d., as available payment in London, *one* month after date of its investment in gold at St. Petersburgh; and 37½d. would thus appear to be an equivalent exchange, if, instead of the investment in foreign gold to be sent over, the silver rouble were laid out at St. Petersburgh in a remittance per draft on London, payable there at one month's date. But, as it is customary at St. Petersburgh to make such remittances in bills payable at *three* months' date, the calculation of an equivalent exchange for such usance requires an addition of interest for the extra two months of later payment by bill, which, at the rate of 5 per cent per annum, makes $\frac{5}{6}$ per cent, or $\frac{1}{3}\frac{9}{2}$d. per rouble, and establishes the equivalent of a silver rouble to be 37 $\frac{1}{1}\frac{1}{6}$d. in bills, payable in London at three months' date, as the standard par of exchange at St. Petersburgh.

18. If, on the other hand, British gold were sent over from London to St. Petersburgh, to be there converted into Russian gold coins, and these gold coins exchanged for or valued by silver roubles, in payment to the Russian merchant, for produce shipped by him, the operation would involve the loss of *one* month's interest with charges as above, assumed at $2\frac{9}{6}$ or $\frac{4}{6}\frac{9}{4}$d. per rouble in addition to its intrinsic equivalency of $38\frac{9}{6}\frac{9}{4}$d. of gold, requiring thus $38\frac{3}{3}\frac{9}{2}$d. to be sent over to cover the payment of one silver rouble at St. Petersburgh; instead of its being drawn for there, against ready cash, payable in London 3 months after date; and this benefit of usance being additionally forgone by sending gold, its equivalent in interest, being 1¼ per cent or $\frac{3}{6}\frac{1}{4}$d. per rouble, has further to be added in calculation, to the cost already found at $38\frac{3}{3}\frac{9}{2}$d.; bringing the equivalent of the silver rouble to $39\frac{3}{6}\frac{5}{4}$d. per bills, payable in London three months after date, as the standard par of exchange at St. Petersburgh. From this it further follows, that it is not profitable to import British gold at St. Petersburgh, unless the *current* exchange there rule above $39\frac{3}{6}\frac{5}{4}$d. at three months' date, the loss by interest and charges being merely counterbalanced by that rate.

19. It has further to be observed, that no intrinsic par can properly be established between the Russian and British silver coins, the troy pound of 12 ounces mint silver being coined into 66 shillings, or 5s. 6d. per ounce, while in the London market the price of standard or mint silver varies between 4s. 9d. and 5s. only, and is seldom worth even the latter rate, which accordingly is the utmost that the British merchant could esteem Russian silver to be worth to him. But between British mint silver and Russian silver coin, a conditional par may be established by the following proportions, namely—a troy pound of mint silver, assumed at a market price of 5s. per standard ounce, stands in 60 shillings sterling, and contains 11 oz. 2 dwt. pure silver, equal to 7778¾ parts Russian weight, of which 405 parts go to 1 silver rouble, producing 19⅕ silver roubles. The equivalent of one silver rouble would accordingly be 37½d. sterling, and the loss of interest with expenses of importing it into Russia being assumed at 1½d., the cost at St.

Petersburgh, to be covered by remittances in bills at three months' date, would be 39d. sterling per silver rouble.

20. Considerable quantities of silver in bars being imported into St. Petersburgh from Hamburg, by way of Lubeck, per steamers, we think it right to give the following calculation of such an operation, (founded on a real transaction,) supposing it to have taken place for London account :—

5 casks silver bullion held 14 bars, which weighed in Hamburg 1709 marks, 1 loth, and were assayed there as containing 1689 marks, 6 loths, 11 grains fine, and which, bought at Bco. m. 27 12, stood in.....Bco. m. 46881 4

This prime cost, reckoned at 13m. 5s. per £. makes.....£3521 2s. 6d. stlg.

(1689MX 6L. 11G. being equal to 12,695½ troy ounces pure silver, the ounce came to 5s. 6½d. stlg.)

Insurance on Bco. m. 47730, at ¼ per cent.....Bco. m.	119	6	
Commission on ditto at ⅛ per cent.....	59	11	
Brokerage on ditto at ⅛ per cent.....	59	11	
Stamp and policy.....	22	8	
			261 4
Casks and expenses.....Bco. m.	28	8	
Commission ½ per cent.....	234	9	
Expenses to and at Lubeck.....	68	6	
Brokerage of drafts on London 1 per mille.....	47	8	
Postages.....	8	9	
			387 8
Cost at Hamburg.....Bco. m.			47530 0

2d August, drawn for on London at one month date, (due 5th Sept.) at an exchange of 13m. 5s. per £. in.....£3570 6 7

Against which the remittance of the nett proceeds from St. Petersburgh, procured there the 25th August, O. S., at three months' date, fell due in London on the 9th December; the 95 days interest incurred at 5 per cent per annum, make..... 46 9 3

Freight and charges at St. Petersburgh, as under, sil. ro. 217 84c. at 40d. 36 6 2

Total cost.....£3653 2 0

The prime cost at Hamburg being only £3521 2s. 6d., the expenses incurred accordingly amounted to £131 19s. 6d., or 3¾ per ct., inclusive of 1⅛ per ct. for commissions.

21. These 14 bars silver weighed at St. Petersburgh 976 lb. 12 z. fine, per assay of the Hamburg bank, and were found to be equal to 961 lb. 84z. 77p. fine, per assay at the Russian mint, to be paid for in ready coin, at the fixed rate of 22¾ silver roubles per lb., making silver ro. 21882 84co. received, which at the exchange of 40d. per rouble, amounted to.....£3647 2 10

The charges deducted at St. Petersburgh were:—	Sil. Ro.		
Freight from Lubeck per steamer, Bco. m. 129 1 at 38⅛s...	58	38	
Landing, entry, and delivering at the mint.	43	0	
Commission on sil. ro. 21882 84c. at ½ per cent.....109		41	
Postages.....	7	5	
Sil. Ro. 217 84 at 40d.			36 6 2
Nett proceeds.....			£3610 16 8

Remitted for 25th August, O. S., in bills at 3 months' date, to cover the Hamburg draft of £3570 6s. 7d., making, with interest in London, £3616 15s. 10d. Accordingly an exchange of no less than 40 1/16d. per silver rouble was required.

22. The annual balance of trade between Great Britain and Russia, being considerably in favor of the latter country, the Russian exchange on London generally rules above the par of 39 5/8d., particularly during the height of the shipping season; and is only reduced to that par, or brought under it, when a high course has attracted a considerable im-

portation of foreign gold and silver, counterbalancing the excess of the exportation of produce. During the winter season, between December and May, it sometimes happens that Russia has more to remit for to Great Britain and the continent, than to draw in; and when that is the case, the exchange is found to rule under the par of 39$\frac{3}{4}\frac{5}{4}$d.; but such decline seldom exceeds 2 per cent, while the advance above par in autumn, has in some years been found to reach 5 to 8 per cent; particularly when there is a demand for Russian corn. This summer (1839) we received pretty considerable supplies of foreign gold and silver; and, since the re-establishment of the silver standard of currency, the course of exchange has not varied much. The quotations at St. Petersburgh on London were—on the 11th July, O. S., 39$\frac{11}{16}$d.; the 11th August, 40 to 39$\frac{1}{4}$d.; the 12th September, 39$\frac{9}{16}$ to $\frac{1}{2}$d.; the 13th October, 39$\frac{11}{16}$d.; the 10th November, 38$\frac{3}{4}$ to $\frac{1}{2}$d.; the 17th November, 38$\frac{1}{2}$d.; and the 1st December, 38$\frac{1}{2}$ to 38$\frac{3}{4}$d. per silver rouble.

23. *Table, showing the value of* £1 *to* £100,000 *sterling, in silver copecks; and of Rouble* 1 *to* 100,000 *silver, in pence British sterling, at progressive courses of exchange, for simplifying the arithmetical operation of conversion:—*

Exchange.	*Value of* £1 *to* £100,000 *in silver copecks.*	*Value of Ro.* 1 *to Ro.* 100,000 *silver in pence sterling.*	*Exchange.*	*Value of* £1 *to* £100,000 *in silver copecks.*	*Value of Ro.* 1 *to Ro.* 100,000 *silver in pence sterling.*
38$\frac{1}{2}$	6.23,376.62	38,50000	40$\frac{3}{8}$	5.94,427.24	40,37500
38$\frac{9}{16}$	6.22,366.29	38,56250	40$\frac{7}{16}$	5.93,508.50	40,43750
38$\frac{5}{8}$	6.21,359.22	38,62500	40$\frac{1}{2}$	5.92,592.59	40,50000
38$\frac{11}{16}$	6.20,355.41	38,68750	40$\frac{9}{16}$	5.91,679.51	40,56250
38$\frac{3}{4}$	6.19,354.84	38,75000	40$\frac{5}{8}$	5.90,769.23	40,62500
38$\frac{13}{16}$	6.18,357.49	38,81250	40$\frac{11}{16}$	5.89,861.75	40,68750
38$\frac{7}{8}$	6.17,363.34	38,87500	40$\frac{3}{4}$	5.88,957.06	40,75000
38$\frac{15}{16}$	6.16,372.39	38,93750	40$\frac{13}{16}$	5.88,055.13	40,81250
39	6.15,384.62	39,00000	40$\frac{7}{8}$	5.87,155.96	40,87500
39$\frac{1}{16}$	6.14,400.00	39,06250	40$\frac{15}{16}$	5.86,259.54	40,93750
39$\frac{1}{8}$	6.13,418.53	39,12500	41	5.85,365.85	41,00000
39$\frac{3}{16}$	6.12,440.19	39,18750	41$\frac{1}{16}$	5.84,474.89	41,06250
39$\frac{1}{4}$	6.11,464.96	39,25000	41$\frac{1}{8}$	5.83,586.62	41,12500
39$\frac{5}{16}$	6.10,492.85	39,31250	41$\frac{3}{16}$	5.82,701.06	41,18750
39$\frac{3}{8}$	6.09,523.81	39,37500	41$\frac{1}{4}$	5.81,818.18	41,25000
39$\frac{7}{16}$	6.08,557.84	39,43750	41$\frac{5}{16}$	5.80,937.97	41,31250
39$\frac{1}{2}$	6.07,594.94	39,50000	41$\frac{3}{8}$	5.80,060.42	41,37500
39$\frac{9}{16}$	6.06,635.07	39,56250	41$\frac{7}{16}$	5.79,185.52	41,43750
39$\frac{5}{8}$	6.05,678.23	39,62500	41$\frac{1}{2}$	5.78,313.25	41,50000
39$\frac{11}{16}$	6.04,724.41	39,68750	41$\frac{9}{16}$	5.77,443.61	41,56250
39$\frac{3}{4}$	6.03,773.58	39,75000	41$\frac{5}{8}$	5.76,576.58	41,62500
39$\frac{13}{16}$	6.02,825.75	39,81250	41$\frac{11}{16}$	5.75,712.14	41,68750
39$\frac{7}{8}$	6.01,880.87	39,87500	41$\frac{3}{4}$	5.74,850.30	41,75000
39$\frac{15}{16}$	6.00,938.97	39,93750	41$\frac{13}{16}$	5.73,991.03	41,81250
40	6.00,000.00	40,00000	41$\frac{7}{8}$	5.73,134.33	41,87500
40$\frac{1}{16}$	5.99,063.96	40,06250	41$\frac{15}{16}$	5.72,280.18	41,93750
40$\frac{1}{8}$	5.98,130.84	40,12500	42	5.71,428.57	42,00000
40$\frac{3}{16}$	5.97,200.62	40,18750	42$\frac{1}{16}$	5.70,579.49	42,06250
40$\frac{1}{4}$	5.96,273.29	40,25000	42$\frac{1}{8}$	5.69,732.93	42,12500
40$\frac{5}{16}$	5.95,348.84	40,31250	42$\frac{3}{16}$	5.68,888.89	42,18750

24. With reference to the foregoing table, the value of any given sum may, at any given exchange, be easily calculated by the rule of decimal fractions. If, for instance, the given course be $39\frac{1}{16}$d. per silver rouble, look for it in the table, and you will find that—

£	S. R. Co.	Ro. S.		£	s.	d.
1 makes	6.04$\frac{7}{16}$ And	1 makes	39$\frac{6875}{100000}$d. or	0	3	3$\frac{3}{4}$
10	60.47$\frac{2}{16}$.....	10	396$\frac{875}{10000}$	1	13	0$\frac{7}{8}$
100	604.72$\frac{4}{16}$.....	100	3,968$\frac{750}{1000}$	16	10	8$\frac{1}{2}$
1000	6,047.24$\frac{4}{16}$.....	1000	39,687$\frac{50}{100}$	165	7	3$\frac{1}{2}$
10000	60,472.44$\frac{1}{16}$.....	10000	396,875$\frac{0}{16}$	1,653	12	11
100000	604,724.41	100000	3,968,750	16,536	9	2

Further: Wanted the amount of £525, at 39¼d.? Solution: Multiply by 60,377,358; divide by 100,000, and you get S. Ro. 3169 81½ cop. Wanted the amount of S. Ro. 2325, at $39\frac{13}{16}$d.? Solution: multiply by 3981,250, divide by 100,000, and you get 92564½d., or £385 13s. 8½d. Expert calculators well know, that in decimals, both the multiplicator and divisor may be shortened, by striking off from each such an equal number of figures from the right side, as will reduce the decimal fraction to hundredth, instead of the hundredth thousandth parts of copecks or pence, implied by the table, thereby shortening the operation. For instance: if the above multiplicators be only assumed, 60377⅓ or 3981¼, then the corresponding divisor is only 100, producing the same results, within a scarcely perceptible difference in the last fraction of a copeck or penny.

25. Although it is enacted, that the prices of merchandise are to be fixed in silver roubles, yet, the old bank note roubles remaining in circulation, as an auxiliary tender of payment, at the invariable rate of 3½ Ro. for 1 S. Ro.; it may frequently occur, that prices be quoted in bank notes, without mentioning their silver equivalents, at which accounts have to be made out. In order to facilitate the checking of the latter, we think it right to give the following

Table of Equivalents of the Old Bank Notes and New Silver Prices.

Rouble or Copeck.	EQUIVALENT.		EQUIVALENT.		EQUIVALENT.		EQUIVALENT.		EQUIVALENT.		EQUIVALENT.	
	B. N.	*Silver.*	*B. N.*	*Silver.*	*B. N.*	*Silver.*	*B. N.*	*Silver.*	*B. N.*	*Silver.*	*B. N.*	*Silver.*
½	Rouble or Copeck. ¼		19	5$\frac{3}{4}$	38	10$\frac{2}{4}$	57	16$\frac{2}{4}$	76	21$\frac{1}{4}$	95	27$\frac{1}{4}$
1	½		20	5$\frac{4}{4}$	39	11$\frac{1}{4}$	58	16$\frac{3}{4}$	77	22	96	27$\frac{3}{4}$
2	1		21	6	40	11$\frac{3}{4}$	59	16$\frac{4}{4}$	78	22$\frac{2}{4}$	97	27$\frac{4}{4}$
3	1½		22	6$\frac{2}{4}$	41	11$\frac{4}{4}$	60	17$\frac{1}{4}$	79	22$\frac{3}{4}$	98	28
4	1$\frac{1}{4}$		23	6$\frac{3}{4}$	42	12	61	17$\frac{2}{4}$	80	22$\frac{4}{4}$	99	28$\frac{2}{4}$
5	1$\frac{2}{4}$		24	6$\frac{4}{4}$	43	12$\frac{2}{4}$	62	17$\frac{3}{4}$	81	23$\frac{1}{4}$	100	28$\frac{3}{4}$
6	1$\frac{3}{4}$		25	7$\frac{1}{4}$	44	12$\frac{3}{4}$	63	18	82	23$\frac{2}{4}$	101	28$\frac{4}{4}$
7	2		26	7$\frac{2}{4}$	45	12$\frac{4}{4}$	64	18$\frac{2}{4}$	83	23$\frac{3}{4}$	102	29$\frac{1}{4}$
8	2$\frac{1}{4}$		27	7$\frac{3}{4}$	46	13$\frac{1}{4}$	65	18$\frac{3}{4}$	84	24	103	29$\frac{2}{4}$
9	2$\frac{2}{4}$		28	8	47	13$\frac{2}{4}$	66	18$\frac{4}{4}$	85	24$\frac{1}{4}$	104	29$\frac{3}{4}$
10	2$\frac{3}{4}$		29	8$\frac{1}{4}$	48	13$\frac{3}{4}$	67	19$\frac{1}{4}$	86	24$\frac{2}{4}$	105	30
11	3$\frac{1}{4}$		30	8$\frac{2}{4}$	49	14	68	19$\frac{2}{4}$	87	24$\frac{3}{4}$	106	30$\frac{1}{4}$
12	3$\frac{2}{4}$		31	8$\frac{3}{4}$	50	14$\frac{1}{4}$	69	19$\frac{3}{4}$	88	25$\frac{1}{4}$	107	30$\frac{2}{4}$
13	3$\frac{3}{4}$		32	9$\frac{1}{4}$	51	14$\frac{2}{4}$	70	20	89	25$\frac{2}{4}$	108	30$\frac{3}{4}$
14	4		33	9$\frac{2}{4}$	52	14$\frac{3}{4}$	71	20$\frac{1}{4}$	90	25$\frac{3}{4}$	109	31$\frac{1}{4}$
15	4$\frac{1}{4}$		34	9$\frac{3}{4}$	53	15$\frac{1}{4}$	72	20$\frac{2}{4}$	91	26	110	31$\frac{2}{4}$
16	4$\frac{2}{4}$		35	10	54	15$\frac{2}{4}$	73	20$\frac{3}{4}$	92	26$\frac{1}{4}$	111	31$\frac{3}{4}$
17	4$\frac{3}{4}$		36	10$\frac{1}{4}$	55	15$\frac{3}{4}$	74	21$\frac{1}{4}$	93	26$\frac{2}{4}$	112	32
18	5$\frac{1}{4}$		37	10$\frac{2}{4}$	56	16	75	21$\frac{2}{4}$	94	26$\frac{3}{4}$	113	32$\frac{1}{4}$

TABLE OF EQUIVALENTS OF OLD BANK NOTES AND NEW SILVER PRICES.—*Continued.*

EQUIVALENT.		EQUIVALENT.		EQUIVALENT.		EQUIVALENT.		EQUIVALENT.		EQUIVALENT.	
B. N.	*Silver.*	*B. N.*	*Silver.*	*B. N.*	*Silver.*	*B. N.*	*Silver.*	*B. N.*	*Silver.*	*B. N.*	*Silver.*
114	32 4/7	139	39 5/7	164	46 6/7	189	54	214	61 1/7	239	68 3/7
115	32 4/7	140	40	165	47 1/7	190	54 2/7	215	61 3/7	240	68 4/7
116	33 1/7	141	40 3/7	166	47 3/7	191	54 4/7	216	61 4/7	241	68 6/7
117	33 3/7	142	40 4/7	167	47 5/7	192	54 6/7	217	62	242	69 1/7
118	33 5/7	143	40 6/7	168	48	193	55 1/7	218	62 2/7	243	69 3/7
119	34	144	41 1/7	169	48 2/7	194	55 3/7	219	62 4/7	244	69 4/7
120	34 2/7	145	41 3/7	170	48 4/7	195	55 5/7	220	62 6/7	245	70
121	34 4/7	146	41 4/7	171	48 6/7	196	56	221	63 1/7	246	70 2/7
122	34 6/7	147	42	172	49 1/7	197	56 2/7	222	63 3/7	247	70 4/7
123	35 1/7	148	42 2/7	173	49 3/7	198	56 4/7	223	63 5/7	248	70 6/7
124	35 3/7	149	42 4/7	174	49 5/7	199	56 6/7	224	64	249	71 1/7
125	35 5/7	150	42 6/7	175	50	200	57 1/7	225	64 2/7	250	71 3/7
126	36	151	43 1/7	176	50 2/7	201	57 3/7	226	64 4/7	251	71 5/7
127	36 2/7	152	43 3/7	177	50 4/7	202	57 5/7	227	64 6/7	252	72
128	36 4/7	153	43 5/7	178	50 6/7	203	58	228	65 1/7	253	72 2/7
129	36 6/7	154	44	179	51 1/7	204	58 2/7	229	65 3/7	254	72 4/7
130	37 1/7	155	44 2/7	180	51 3/7	205	58 4/7	230	65 4/7	255	72 6/7
131	37 3/7	156	44 4/7	181	51 4/7	206	58 6/7	231	66	256	73 1/7
132	37 4/7	157	44 6/7	182	52	207	59 1/7	232	66 2/7	257	73 3/7
133	38	158	45 1/7	183	52 2/7	208	59 3/7	233	66 4/7	258	73 5/7
134	38 2/7	159	45 3/7	184	52 4/7	209	59 5/7	234	66 6/7	259	74
135	38 4/7	160	45 4/7	185	52 6/7	210	60	235	67 1/7	260	74 2/7
136	38 6/7	161	46	186	53 1/7	211	60 2/7	236	67 3/7	261	74 4/7
137	39 1/7	162	46 2/7	187	53 3/7	212	60 4/7	237	67 5/7	262	74 6/7
138	39 3/7	163	46 4/7	188	53 5/7	213	60 6/7	238	68	263	75 1/7

BILLS OF EXCHANGE.

26. Description of Legal Bills in Russia—27. Responsibility by Bills—28. When and how Bills are to be presented for Acceptance—29. Drawers bound to give security in case of Non-acceptance Abroad—30. The Maturity of Bills at Sight and Usances; Exchange of Payment—31. Days of Grace—32. Protest for Non-payment—33. Bills protested, when to be recovered—34. The Action to be brought against the Debtor—35. Pain of Imprisonment in Default of Payment—36. Penalties levied on Protested Bills—37. List of Stamp Duties on Inland and Foreign Bills—38. Translated Form of a sole Inland Bill—39. Attestation of Signature and Indorsement—40. Rate of Discount on Inland Bills; Legal and Bank Interest.

26. The Russian law distinguishes:—1st, sole inland bills, as obligations of payment, issued by a debtor to the order of a creditor, and in which the former is, in one person, drawer, drawee, and acceptor; acknowledging to have received full value from the creditor in cash or goods; and 2d, drafts in first, second, third, &c., bills, issued by a drawer on a drawee, to the order of a taker or remitter; from whom the value is received, in cash, or in goods, or in account, at one place, on condition of payment at another. Both kinds of bills must be drawn on proper stamps; but drafts on foreign countries pay only half of the stamp duty imposed on sole inland bills.

27. Merchants only are allowed to bind themselves by, to draw, and accept bills. A bill may be granted also to the order of a person who is not a merchant; and such person may be the owner and holder of the bill, till maturity, for receiving payment; but cannot transfer or indorse it otherwise than "without recourse." A mercantile holder may indorse a bill *fully*, or merely *in blank*, as he thinks fit. All mercantile indorsers of a bill are responsible "in sols'dum," the same as the drawer and acceptor; unless the indorsement bear "without recourse." An indorser of a bill, having become so as

agent of the indorsee, in procuring the bill by order and for account of the latter, is not responsible for the drawer or preceding indorser, to *such indorsee*, except if he have engaged to guarantee; but he is answerable to other indorsees, succeeding the one for whom he had bought the bill.

28. A bill received for acceptance must be presented by the holder within 24 hours after receipt, say at latest on the following day, Sundays and holidays excepted. Bills drawn at sight must be presented for payment within 12 months, or forfeit the bill right A drawee must grant or refuse acceptance within 24 hours after presentation. Bills drawn abroad on merchants in Russia, when presented for acceptance, must be accompanied by a copy on an adequate Russian stamp, upon which the drawer has to write his acceptance.

29. A remitter, receiving advice from his correspondent of the non-acceptance of a remittance made by him, is entitled to demand security from the drawer or preceding indorser, until the acceptance is granted.

30. A bill drawn "at sight," is payable within 24 hours after acceptance, (if no days of grace be craved.) A bill drawn simply "at usance," is due in 15 days from presentation and acceptance, (if no days of grace be craved.) Bills drawn on Russia in foreign money are payable in Russian currency, either at the exchange mentioned in or on the bill; or if none be mentioned, at the current course quoted upon 'change on the last bill day preceding maturity.

31. Bills drawn payable "at sight," are allowed *three*, and those made payable at usances after sight or date, or simply at "a usance," enjoy *ten* days of grace, including Sundays and holidays; except if the last day be such a one: in that case 4 and 11 days respectively are granted, counting the same from the first day after maturity.

32. Protest for non-payment must be made on the last day of grace, before sunset, against the acceptor and indorsers. After the acceptor, the last indorser is in turn first applied to for payment; if he refuse it also, the claim is then made on the next indorser, and so on to the first, mentioning all of them in the protest. But bills which remained *without acceptance* till maturity, have to be protested on the last day of maturity, *without benefit of days of grace.* In sole inland bills the signature of the drawer is also the acceptance, and the protest for non-payment to be levied on the last day of grace.

33. All the partners of a firm are "in sols'dum" answerable for an acceptance granted by any one of them, which has the signature of the firm. The payment of a bill protested for non-payment must be claimed and enforced by proceedings at law, within two years after protest; if this be not done, the benefit of coercion by bill right is forfeited, and it becomes a simple claim by promissory note. Bills not drawn on, or not presented for acceptance with a copy, on regular stamps, cannot be protested, and besides becoming simple promissory notes, the drawer is liable to a fine for having evaded the stamp duty.

34. An action to be brought against the drawer, acceptor, or indorser of a bill under protest for non-payment, has to be filed in the Police Court, who demand immediate payment of the bill; and if not forthwith discharged, proceed directly in seizing and realizing a sufficiency of the debtor's property, if such can be found; the debtor having in the mean while to find bail, in default whereof he is taken into custody.

35. If no property belonging to the debtor be discoverable, or if what is found prove insufficient for discharging his debt, the bail found by him is done away with, and he is sentenced to suffer pain of imprisonment; the duration of which for a sum exceeding 300 silver roubles, is two years. After the expiration of that term, his personal liberty is restored to him; but he remains answerable for the debt with such property as he may subsequently acquire or inherit. In all cases of non-payment, a debtor is besides

liable to be declared insolvent, by an action to be brought against him in the Commercial Court, or the Magistracy; where he is called to account, and subjected to the formalities and penalties provided by the insolvency laws. These laws we shall give in a future number of this magazine.

36. The amount of sole inland bills, recovered through the Police Court alone, is due with the addition of 2 per cent for loss of interest, and 2 per cent more, as simple penalty for irregular payment. But if the Commercial Court have also to interfere with proceedings or a sentence, then the addition is double, say 4 per cent for interest, and 4 per cent more for penalty. The amount of returned drafts on or from foreign parts, when recovered under protest, is claimed by an account of principal of value paid; with the addition of legal interest, expenses and difference of exchange, incurred by re-draft, as customary among merchants.

37. The stamp duty on sole inland bills is levied by the following scale of sums, required to be drawn; which stamps may severally be used for double the amount at the same duty, for drafts on foreign parts, viz:—

	S. Ro.		S. Ro.		S. Ro.		S. Ro.
For a sum of	1 to 150	the duty is	$1\frac{3}{6}$	For a sum of	3001 to 4500	the duty is	9.
" "	151 to 300	.....	$\frac{9}{16}$	" "	4501 to 6000	.....	12.
" "	301 to 900	.....	$1\frac{1}{2}$	" "	6001 to 7500	.....	15.
" "	901 to 1500	.....	3	" "	7501 to 9000	.....	18
" "	1501 to 2000	.....	$4\frac{1}{2}$	" "	9001 to 10000	.....	21.
" "	2001 to 3000	.....	6	" "	10001 to 12000	.....	24.

For a sum of S. R. 12001 to 13000 the duty is S. R. 27, and for a sum of S. Ro. 13001 to 15000 the duty is S. Ro. 30. The stamps for seconds and thirds of any sum, cost $\frac{3}{16}$ Ro. S. each.

38. Translation of a sole inland bill:—

St. Petersburgh, the 1st August, 1839. Bill for 2000 Silver Roubles.

At the expiration of six months from this first day of August, in the year one thousand eight hundred and thirty-nine, I am bound to pay at St. Petersburgh, by this my bill of exchange, to the St. Petersburgh merchant, (or foreign guest,) of the first guild, Henry Dawson, or to his order, two thousand roubles silver, which sum I have received from him in full in goods, (or, in money.) Michael Peter's son Dmitrieff, Kaluga merchant of the second guild.

39. It is in the option of the taker of such a bill, to let the drawer's signature be attested thereon by a notary public, or not. In transfer the indorsement may be made either in full or in blank; the latter mode is most customary in discount business; but it is of course optional with the taker of a bill by indorsement from a second or third holder, to require the former, as an additional security; each indorsee *named* having to sign next as an indorser in turn.

40. The rate of discount in Russia for inland bills, transferred with one or more responsible indorsements, varies between $6\frac{1}{2}$ and 9 per cent per annum, but when a bill is taken without recourse on the indorser, an additional allowance is made according to the character and standing of the drawer. The simple legal interest for private loans is 6 per cent per annum. The loan and commercial banks of government, receiving voluntary private deposits of money to be invested in bank obligations, bearing interest, and made payable on demand per indorsement, allow only 4 per cent per annum interest, after the expiration of six months; with compound interest after a year, the principal and interest being payable together, as accumulated. Immense amounts of floating capital are constantly invested in these bank obligations, which supply the place of bankers, every merchant having to keep his own cash in Russia. These obligations circulate in the whole empire.

COMMERCIAL TABLES.

FRENCH COINS.

Table, showing the weights of the existing coins of France, with their diameters, etc., etc., etc.

DENOMINATIONS.	EXACT WEIGHT BY LAW.	WEIGHTS TOLERATED BY LAW.		DIAMETERS.
		Maximum.	*Minimum.*	
GOLD.	*Grammes.*	*Grammes.*	*Grammes.*	*Millimetres.*
40 franc pieces, ...	12.90322	12.92903	12.8774	26
20 " "	6.45161	6.46451	6.43871	21
SILVER.				
5 franc pieces, ...	25.	25.075	24.925	37
2 " "	10.	10.05	9.95	27
1 " "	5.	5.025	4.975	23
1 f. 75 c. "	3.75	3.77625	3.72375	23
1 f. 50 c. "	2.5	2.5175	2.4825	18
1 f. 25 c. "	1.25	1.2625	1.2375	15
BILLON.				
10 centime pieces, . . .	2.	2.014	1.986	19
COPPER.				
10 centime pieces, . . .	20.	20.4	*Not tolerated below nominal weight.*	31
5 " "	10.	10.2		27
3 " "	6.	6.12		25
2 " "	4.	4.08		22
1 " "	2.	2.04		22

*** Coins formed of the same metal, and of the same value, are rigorously of the same diameter and thickness; and when the value of one pile is known, the contents of any other number of piles of the same height may readily be determined, as they contain the same number of pieces. Hence, from this exactness, the French measures of length may be ascertained with a tolerable degree of accuracy by means of coins. For example, a *metre* is equal to a pile of—

32 pieces of 40 francs, and 8 pieces of 20 francs.
11 pieces of 40 francs, and 34 pieces of 20 francs.
19 pieces of 5 francs, and 11 pieces of 2 francs.
20 pieces of 2 francs, and 20 pieces of 1 franc.
20 pieces of 5 centimes, and 20 pieces of 1 franc.
7 pieces of 10 centimes, and 29 pieces of 5 centimes.

TABLES OF COMMERCIAL WEIGHT,

Computed for the Merchants' Magazine, conformably to M. MATHIEU'S *Report to the Royal Academy of Sciences of France.*

TABLE FOR CONVERTING AVOIRDUPOIS POUNDS AND TONS INTO FRENCH GRAMMES, KILOGRAMMES, AND MILLIERS.

Pounds.	Kilogram's.	Grammes.	Kilogram's.	Pounds.	Grammes.	Kilogram's.	Pounds.	Tons.	Milliers.	Kilogram's.
1	0.453	1	0.113	170	77.086	450	204.052	730	331.017	1.016
2	0.907	2	0.227	180	81.621	460	208.586	740	335.552	2.031
3	1.360	3	0.340	190	86.155	470	213.121	750	340.086	3.047
4	1.814	4	0.453	200	90.690	480	217.655	760	344.620	4.063
5	2.267	5	0.567	210	95.224	490	222.190	770	349.155	5.078
6	2.721	6	0.680	220	99.759	500	226.724	780	353.689	6.094
7	3.174	7	0.794	230	104.293	510	231.258	790	358.224	7.110
8	3.628	8	0.907	240	108.828	520	235.793	800	362.758	8.125
9	4.081	9	1.020	250	113.362	530	240.327	810	367.293	9.141
10	4.534	10	1.134	260	117.896	540	244.862	820	371.827	10.156
20	9.069	20	2.267	270	122.431	550	249.396	830	376.362	20.313
30	13.603	30	3.402	280	126.965	560	253.931	840	380.896	30.469
40	18.138	40	4.536	290	131.500	570	258.465	850	385.431	40.626
50	22.672	50	5.670	300	136.034	580	263.000	860	389.965	50.782
60	27.207	60	6.804	310	140.569	590	267.534	870	394.500	60.939
70	31.741	70	7.938	320	145.103	600	272.069	880	399.034	71.095
80	36.276	80	9.072	330	149.638	610	276.603	890	403.569	81.252
90	40.810	90	10.206	340	154.172	620	281.138	900	408.103	91.408
100	45.345	100	11.340	350	158.707	630	285.672	910	412.638	101.565
110	49.879	110	12.474	360	163.241	640	290.207	920	417.172	203.130
120	54.414	120	13.608	370	167.776	650	294.741	930	421.707	304.695
130	58.948	130	14.742	380	172.310	660	299.276	940	426.241	406.260
140	63.483	140	15.876	390	176.845	670	303.810	950	430.776	507.825
150	68.017	150	17.010	400	181.379	680	308.345	960	435.310	609.389
160	72.552	160	18.144	410	185.914	690	312.879	970	439.845	710.954
				420	190.448	700	317.414	980	444.379	812.519
				430	194.983	710	321.948	990	448.914	914.084
				440	199.517	720	326.483	1000	453.448	1015.649

TABLE FOR CONVERTING FRENCH KILOGRAMMES AND MILLIERS INTO AVOIRDUPOIS POUNDS AND TONS.

Kilogram's.	Pounds.	Pounds.	Kilogram's.	Pounds.	Pounds.	Tons.	Milliers.	Tons.	1000lbs.
1	2.205	1000	450	992.466	1000	1.016	1	0.984	0.551
2	4.411	2000	460	1014.521	2000	2.032	2	1.968	1.103
3	6.616	3000	470	1036.576	3000	3.048	3	2.953	1.654
4	8.822	4000	480	1058.630	4000	4.064	4	3.937	2.205
5	11.027	5000	490	1080.685	5000	5.080	5	4.921	2.756
6	13.233	6000	500	1102.740	6000	6.096	6	5.905	3.307
7	15.438	7000	510	1124.795	7000	7.112	7	6.889	3.858
8	17.644	8000	520	1146.850	8000	8.128	8	7.874	4.409
9	19.849	9000	530	1168.904	9000	9.144	9	8.858	4.960
10	22.055	10000	540	1190.959	10000	10.160	10	9.842	5.511
20	44.120	20000	550	1213.014	20000	20.321	20	19.684	11.023
30	66.164	30000	560	1235.069	30000	30.481	30	29.526	16.534
40	88.219	40000	570	1257.124	40000	40.642	40	39.368	22.046
50	110.274	50000	580	1279.178	50000	50.802	50	49.210	27.557
60	132.329	60000	590	1301.233	60000	60.963	60	59.052	33.069
70	154.384	70000	600	1323.288	70000	71.123	70	68.894	38.580
80	176.438	80000	610	1345.343	80000	81.284	80	78.736	44.092
90	198.493	90000	620	1367.398	90000	91.444	90	88.578	49.603
100	220.548	100000	630	1389.452	100000	101.605	100	98.420	55.114
110	242.603	110000	640	1411.507	200000	203.210	200	196.840	110.229
120	264.658	120000	650	1433.562	300000	304.815	300	295.260	165.343
130	286.712	130000	660	1455.617	400000	406.420	400	393.680	220.457
140	308.767	140000	670	1477.672	500000	508.025	500	492.100	275.572
150	330.822	150000	680	1499.726	600000	609.630	600	590.520	330.686
160	352.877	160000	690	1521.781	700000	711.235	700	688.940	385.800
			700	1543.836	800000	812.840	800	787.360	440.915
			710	1565.891	900000	914.445	900	885.780	496.029
			720	1587.946	1000000	1016.050	1000	984.200	551.144

BULLION TABLES.

Computed for the Merchants' Magazine, agreeably to the Regulations of the United States Mint.

TABLE FOR CONVERTING FRENCH GRAMMES AND KILOGRAMMES INTO TROY OUNCES.

Grammes.	Ounces.	1000 lbs.	Grammes.	Ounces.	1000 lbs.	Grammes.	Ounces.	1000 lbs.	Grammes.	Ounces.	1000 lbs.
1	0.032	0.032	200	6.433	6.433	760	24.444	24.444	180	15.438	15.438
2	0.064	0.064	210	6.754	6.754	770	24.766	24.766	190	15.760	15.760
3	0.096	0.096	220	7.076	7.076	780	25.087	25.087	200	16.082	16.082
4	0.129	0.129	230	7.398	7.398	790	25.409	25.409	210	16.403	16.403
5	0.161	0.161	240	7.719	7.719	800	25.731	25.731	220	16.725	16.725
6	0.193	0.193	250	8.041	8.041	810	26.052	26.052	230	17.047	17.047
7	0.225	0.225	260	8.362	8.362	820	26.374	26.374	240	17.368	17.368
8	0.257	0.257	270	8.684	8.684	830	26.695	26.695	250	17.690	17.690
9	0.289	0.289	280	9.006	9.006	840	27.017	27.017	260	18.011	18.011
10	0.322	0.322	290	9.327	9.327	850	27.339	27.339	270	18.333	18.333
20	0.643	0.643	300	9.649	9.649	860	27.660	27.660	280	18.655	18.655
30	0.965	0.965	310	9.971	9.971	870	27.982	27.982	290	18.976	18.976
40	1.287	1.287	320	10.292	10.292	880	28.304	28.304	300	19.298	19.298
50	1.608	1.608	330	10.614	10.614	890	28.625	28.625	310	19.620	19.620
60	1.930	1.930	340	10.936	10.936	900	28.947	28.947	320	19.941	19.941
70	2.251	2.251	350	11.257	11.257	910	29.269	29.269	330	20.263	20.263
80	2.573	2.573	360	11.579	11.579	920	29.590	29.590	340	20.584	20.584
90	2.895	2.895	370	11.900	11.900	930	29.912	29.912	350	20.906	20.906
100	3.216	3.216	380	12.222	12.222	940	30.233	30.233	360	21.228	21.228
110	3.538	3.538	390	12.544	12.544	950	30.555	30.555	370	21.549	21.549
120	3.860	3.860	400	12.865	12.865	960	30.877	30.877	380	21.871	21.871
130	4.181	4.181	410	13.187	13.187	970	31.198	31.198	390	22.193	22.193
140	4.503	4.503	420	13.509	13.509	980	31.520	31.520	400	22.514	22.514
150	4.824	4.824	430	13.830	13.830	990	31.842	31.842	410	22.836	22.836
160	5.146	5.146	440	14.152	14.152	1000	32.163	32.163	420	23.158	23.158
170	5.468	5.468	450	14.473	14.473				430	23.479	23.479
180	5.789	5.789	460	14.795	14.795				440	23.801	23.801
190	6.111	6.111	470	15.117	15.117				450	24.122	24.122

TABLE FOR CONVERTING TROY GRAINS AND OUNCES INTO FRENCH GRAMMES AND KILOGRAMMES.

Grains.	Grammes.	1000 lbs.	Ounces.	Kilogram's.	1000 lbs.	Ounces.	Grammes.	Kilogram's.	Ounces.	Grammes.	Kilogram's.	Ounces.	Grammes.	Kilogram's.
1	0.065	0.065	1	32.163	1	1	0.031	0.031	200	6.218	6.218	480	14.924	14.924
2	0.130	0.130	2	64.326	2	2	0.062	0.062	210	6.529	6.529	490	15.235	15.235
3	0.194	0.194	3	96.490	3	3	0.093	0.093	220	6.840	6.840	500	15.546	15.546
4	0.259	0.259	4	128.653	4	4	0.124	0.124	230	7.151	7.151	510	15.857	15.857
5	0.324	0.324	5	160.816	5	5	0.155	0.155	240	7.462	7.462	520	16.167	16.167
6	0.389	0.389	6	192.979	6	6	0.187	0.187	250	7.773	7.773	530	16.478	16.478
7	0.453	0.453	7	225.143	7	7	0.218	0.218	260	8.084	8.084	540	16.789	16.789
8	0.518	0.518	8	257.306	8	8	0.249	0.249	270	8.395	8.395	550	17.100	17.100
9	0.583	0.583	9	289.469	9	9	0.280	0.280	280	8.706	8.706	560	17.411	17.411
10	0.648	0.648	10	321.632	10	10	0.311	0.311	290	9.016	9.016	570	17.722	17.722
20	1.295	1.295	20	643.265	20	20	0.622	0.622	300	9.327	9.327	580	18.033	18.033
30	1.943	1.943	30	964.897	30	30	0.933	0.933	310	9.638	9.638	590	18.344	18.344
40	2.591	2.591	40	1286.530	40	40	1.244	1.244	320	9.949	9.949	600	18.655	18.655
50	3.239	3.239	50	1608.162	50	50	1.555	1.555	330	10.260	10.260	610	18.966	18.966
60	3.886	3.886	60	1929.794	60	60	1.865	1.865	340	10.571	10.571	620	19.277	19.277
70	4.534	4.534	70	2251.427	70	70	2.176	2.176	350	10.882	10.882	630	19.588	19.588
80	5.182	5.182	80	2573.059	80	80	2.487	2.487	360	11.193	11.193	640	19.898	19.898
90	5.829	5.829	90	2894.692	90	90	2.798	2.798	370	11.504	11.504	650	20.209	20.209
100	6.477	6.477	100	3216.324	100	100	3.109	3.109	380	11.815	11.815	660	20.520	20.520
200	12.954	12.954	200	6432.648	200	110	3.420	3.420	390	12.126	12.126	670	20.831	20.831
300	19.431	19.431	300	9648.972	300	120	3.731	3.731	400	12.437	12.437	680	21.142	21.142
400	25.908	25.908	400	12865.296	400	130	4.042	4.042	410	12.747	12.747	690	21.453	21.453
500	32.385	32.385	500	16081.620	500	140	4.353	4.353	420	13.058	13.058	700	21.764	21.764
600	38.862	38.862	600	19297.944	600	150	4.664	4.664	430	13.369	13.369	710	22.075	22.075
700	45.339	45.339	700	22514.268	700	160	4.975	4.975	440	13.680	13.680	720	22.386	22.386
800	51.816	51.816	800	25730.592	800	170	5.286	5.286	450	13.991	13.991	730	22.697	22.697
900	58.293	58.293	900	28946.916	900	180	5.596	5.596	460	14.302	14.302	740	23.008	23.008
1000	64.770	64.770	1000	32163.240	1000	190	5.907	5.907	470	14.613	14.613	750	23.318	23.318

NAUTICAL INTELLIGENCE.

DIRECTIONS FOR THE COAST ABOUT ROTTENEST ISLAND.

FROM THE LONDON NAUTICAL MAGAZINE.

Rottenest Island, six miles in length, E. by N. and W. by S., with an extreme breadth of two miles and a half, has an irregular hummocky surface, not much wooded, and may now be distinguished from Garden Island and the contiguous main land by a white obelisk, fifteen feet in height, with a pole in the middle, of the same length, which has recently been erected on its highest part, near the centre of the island. This sea mark being elevated about 157 feet above the level of the sea, may be seen from a ship's deck in clear weather, at the distance of seven or eight leagues, and will shortly give place to a lighthouse of greater elevation. Its position, according to observations in H. M. S. Beagle, is lat. 32 deg. 0 min. 14 sec. south, long. 115 deg. 29 min. 6 sec. east from Greenwich.

To round the island on its north side, a ship should not approach nearer than one mile, in order to avoid the Horseshoe Rock, which lies three quarters of a mile off shore, at the distance of two miles north 39 deg. east from the island's west extremity, and Roes Reef, situated three quarters of a mile north 16 deg. west from a small rock with a cask beacon upon it, about half a cable's length from the island's northeast point. The beacon is upon Duck Rock, and the projection near it is Bathurst Point. A ship will be clear to the northward of Horseshoe Rock while Duck Rock beacon is kept open of the north point of Rottenest; and Roes Reef may be cleared on the north by keeping the west end of Rottenest (Cape Vlaming,) open of the north point, until Duck Rock bears south; a course may then be shaped about E. by S., for a remarkable white sand patch on the main, which will be distinctly visible three miles and a half north from the entrance to Swan River; and when some rocky islets near the southeast side of Rottenest are seen to the SSW., opening round the east end of another small rock with a cask beacon upon it, one mile and a quarter SE. ½ E. from Dutch Rock, a SE. by E. course will conduct into Gage's Roads.

Kingston Spit, in front of Thompson's Bay, extends two miles east from Duck Rock, and a long mile NE. by E. from the beacon last mentioned, which has recently been placed upon Fisherman's Rock, a small mass of white rocks about two cables' length northeast from the sandy east point of Rottenest Island, distinguished by the name of Point Philip. To clear Kingston Spit on the north, keep Duck Rock a little shut into the south of a bare, pointed hill, near the northern shore of Rottenest; or should the bare hill not be distinguished, keep the north extreme of Rottenest to the southward of W. ½ S.; and to clear Kingston Spit on the south, keep the south extreme of Rottenest (Point Parker,) open of the next projection to the northeast of it (SW. by W.) Thompson's Bay is a fit resort for boats only, being full of shoal rocky patches and sand banks, to the distance of a mile from the shore, the remainder of Kingston Spit being occupied by foul, uneven ground, with depths varying between five and two fathoms; near its north and east edges are seven fathoms, deepening to nine and ten in half a mile. Between Point Philip and the next projection, a long half mile to the SSW. (Bickley Point,) there is good shelter in Beagle's Anchorage from all the usual northwest and southwest gales of winter, the best berth being in four fathoms water, sandy ground, nearly half a mile south from Fisherman's Rock, and a quarter of a mile northeast from two small rocks called the Twins; the south point of Rottenest being also in a line with Bickley Point. In this situation a vessel should moor, on account of the limited space.

On the southeast side of Rottenest there is a good channel, two miles and a half wide,

called the southern passage into Gage's Roads, the only obstruction in it being a patch of three fathoms, sand and weeds, called Middle Bank, in line between Point Philip and the Champion Rocks, at one mile and three quarters from the former, and one mile and a quarter from the latter. After a gale, the northwest swell round the east end of Rottenest, crossing the ocean roll from the southwest, breaks heavily at this spot, and indicates its position; it may, however, be avoided by borrowing towards the rocky islets near Rottenest, which have no dangers fronting them beyond a cable's length; and the bank is cleared to the eastward when the beacon on Duck Rock opens round to the northeastward of that on Fisherman's Rock. These two beacons in a line lead also about a cable's length to the northeast of the Champion Rock, which has only nine feet water upon it, with four and five fathoms all around. This danger, which lies on the southeast side of the southern passage, is at the northwest extremity of a collection of rocks and foul ground that extends two miles and a half NNW. ½ W. from the Stragglers towards the east end of Rottenest, without any channel among them which can yet be pronounced safe. In working up for the southern passage with a northerly wind, the Champion Rock and dangers in its vicinity may be avoided by keeping the high lump of rock called the Mewstone, open to the southwest of the largest and highest of the Stragglers, until the southwest end of Rottenest shuts in round its south point, bearing about W. ½ N. This last mark will carry a ship clear between Champion Rock and Middle Bank; but should the Mewstone and Stragglers not be satisfactorily distinguished, the beacon on Fisherman's Rock should not be brought to bear more to the westward than north 30 deg. west by compass, until the southwest point is shut in by the south point of Rottenest, as before shown.

METHOD OF MANUFACTURING SHIP CORDAGE.

Henry Evans, of New Bedford, has invented a machine for the manufacture of ship cordage, which promises to be a discovery of great value to nautical men, and cannot fail of displacing the clumsy contrivances hitherto in use. The machine is of simple construction, and designed to be of such size that ten of them may be operated in a room 25 feet by 40, capable of producing six thousand fathoms of rope per hour. Mr. Evans has spent much time upon the subject, and has more than once abandoned the idea of success, but he has at length triumphed. Machines, invented by Mr. E., for spinning and tarring the yarn, are already in use at the Plymouth Cordage Manufactory. The present invention makes the apparatus complete, and, as before remarked, it cannot be other than of great utility and value.

ROCK NEAR CAPE BOUSSA.

The following authentic communication has been received at the New York Custom-house, and being regarded as interesting to American navigation in the Mediterranean, publicity is given to it by Edward Curtis, the Collector of Customs for the Port of New York:—

H. B. M. steam vessel Lizard,
Tangier Bay, May 12, 1841.

Sir—I beg to acquaint you, for the information of the masters of vessels trading from the eastward to Tangier, that there is a rock, not marked in any chart, situated near Cape Boussa, one mile off shore, on which her majesty's brig Jasseur struck. Its bearings are the town of Tangier, half open off Cape Malabata, and Cape Boussa SE. ¼ E The least water is 16 feet, at high water, deepening quickly to 5, 7, and 10 fathoms all around it, leaving a good passage in-shore of the rock. A vessel coming from the eastward will be clear of all danger by keeping the town of Tangier quite open off Cape Malabata.

W. G. B. EASTCOURT,
Lieut. commanding.

PROTECTION OF SHIPS FROM CORROSION AND DECAY

A late English paper contains an extract from the Dundee Courier, in which it is stated that a Mr. Wall, of Dundee, has invented a process for the protection of copper-bottomed vessels from corrosion and decay. The great advantage of the discovery of Mr. Wall consists in this, that he covers the copper with a thin coating of a *poisonous composition*, which, while it completely resists corrosion, by its poisonous qualities also prevents all destruction to the vessel by marine insects. This composition may be applied to iron, zinc, or any other cheap metal, which, when coated over with it, preserves ships as well as copper does. The prepared zinc is about one half, and the iron about one third the expense of copper. Certificates in evidence of these facts have been obtained from the officers of Sheerness dockyard, and from Professor Daniell, and other distinguished chemists; and it is furthermore stated that Mr. Wall's composition has been found in practice a complete safeguard to vessels for a period of not less than three years, while sailing in those latitudes where the marine insects are known to be most destructive. Mr. Wall's composition is now also extensively used as a coating for iron bolts and nails, being found completely to prevent their corrosion.

GRAHAM'S SHOAL.

This dangerous shoal lies in latitude 37 deg. 9 min. 5 sec. north, and longitude 12 deg. 43 min. 15 sec. east of Greenwich, which was obtained by a series of angles from known fixed stations on the coast of Sicily and Pantelleria, the atmosphere not being favorable for astronomical observations, although those obtained differed very triflingly from above. The summit or shoal part of the rock is of an oblong form; it lies northwest and southeast, it is forty fathoms in length, consisting of hard dark-colored pointed rocks with sea weed, the edge (which was clearly perceptible) is jagged, pointed, and steep. The least depth of water found on it was ten feet, but no doubt much less may be found with a calm sea. The average depth at the distance of eighty fathoms from its centre twenty-five fathoms cinders, and one quarter of a mile, sixty-five fathoms fine black sand. Fine scollops and other shellfish, with young coral, was dredged up. This shoal is extremely dangerous, from the great depth of water around it, and from the various and strong currents that prevail in its neighborhood, as well as the difficulty of seeing it, for it is visible only at a very short distance. Southwest Peak Pantelleria, south 54 deg. west; Peak Campo Bello, north 5 deg. 50 sec. west; town of Sciacca, north 40 deg. east; Cape Rosello, north 78 deg. 50 sec. east, from bearings found independent of the compass, variation 17 deg. 0 min. west. The current set over the lock to east and north, one mile and three-quarters per hour.

T. ELSON.

SUNKEN ROCK IN BASS STRAITS.

There are many unexplored parts in Bass Straits, and the approaches to King's Island are among them. The following danger has not yet appeared in the charts, and mariners must carefully attend to the account given of it by the Port Philip harbor-master:—

"Capt. Lewis, the harbor-master, on his late expedition to Kings Island, in Bass Straits, in aid of the shipwrecked passengers and crew of the Isabella, discovered a very dangerous rock, nearly level with the sea at low water, and the tide breaking over it at times at high water. The rock is situated in lat. 40 deg. 9 min. south, seven or eight miles off the western side of King's Island. In-shore, three cables' length, Captain Lewis found thirteen fathoms' water; next cast, no soundings."—*Port Philip Patriot.*

COMMERCIAL STATISTICS.

ANNUAL EXPORT OF BRITISH MANUFACTURES.

COTTON, LINEN, SILK, AND WOOLLEN GOODS.

We have compiled from a variety of authentic sources, as parliamentary documents, etc., the following statistics of British manufactures, exhibiting the progress of this branch of the productive industry of the United Kingdom. The value of the exports, it will be seen, is carried out in dollars and cents, at the rate of $4 44 the £, for the convenience of the American reader.

COTTON GOODS.—The total declared value of cotton manufactured goods, exported from British ports, was in—

1790	£1,662,369	$7,380,918 36	1837	£13,650,583	$60,608,588 52
1834	15,347,050	68,140,902 00	1838	16,700,468	74,150,077 92
1835	16,421,715	72,912,414 60	1839	17,692,183	78,553,292 52
1836	18,511,692	82,191,912 48	1840	17,567,310	77,998,856 40

LINEN GOODS.—The declared value of linen manufactured goods exported from the United Kingdom in the years commencing 5th January, was in—

1834	£2,443,344	$10,848,447 36	1838	£2,919,719	$12,963,552 36
1835	2,992,142	13,285,110 48	1839	3,414,967	15,162,453 48
1836	3,326,323	14,768,874 12	1840	3,306,088	14,679,030 72
1837	2,326,323	13,328,874 12	1841		

SILK GOODS.—The declared value of manufactured silk goods exported from England in the years commencing January 5, was in—

1820	£371,775	$1,650,681 00	1837	£503,673	$2,236,308 12
1826	168,801	749,476 44	1838	775,031	3,498,857 64
1834	637,197	2,829,154 68	1839	868,118	3,854,443 92
1835	973,785	4,323,605 40	1840	792,648	3,519,357 12
1836	917,821	4,075,125 24	1841		

A considerable part of these silk goods, it is a remarkable fact, have even been exported to France, the most formidable rival of Great Britain in this branch of manufactures. The exports of silk goods to France were—in 1832, £57,187; in 1833, £76,525; 1834, £60,346; 1835, £45,612; 1836, £48,160; 1837, £43,144; 1838, £56,698; 1839, £44,628.

WOOLLEN GOODS.—Declared value of British manufactured woollen goods, exported from the United Kingdom in the years commencing Jan. 5th:—

1815	£9,381,426	$41,653,531 44	1836	£7,639,353	$33,918,727 32
1818	8,140,767	36,145,005 48	1837	4,665,977	20,716,937 88
1822	6,488,167	28,807,461 48	1838	5,792,156	25,717,172 64
1830	4,728,666	20,995,277 04	1839	6,271,645	27,846,103 80
1834	5,736,870	25,471,702 80	1840	5,327,853	23,655,667 32
1835	6,840,510	30,371,864 40	1841		

BRITISH COTTON TRADE.

Exports of ... the continent of E... ary, 1841, to 1st of August, 1841, (eight months:)—

American,	20,427 bales.	British India,	23,715 bales
Brazilian,	1,760 do.	Other kinds,	2,200 do.

The imports of India cotton into England, from the 1st of January to 1st of August, 1841, amounted to 98,836 bales; and during the same period in 1840 amounted to 93,186 bales; showing an increase, in favor of 1841, of 5650 bales.

The imports of cotton from the British West Indies into England from 1st January to 1st of August, 1841, was 5096 bales; same period in 1840, only 2821; increase from 1840, of 2275 bales.

BRITISH WHEAT AND FLOUR TRADE.

An Account of the Average Price of Wheat in Great Britain, in the year 1840, *together with the total number of quarters of foreign and colonial wheat and wheat flour imported in the same year; distinguishing foreign from colonial, and the quantities entered for home consumption; also the average price of wheat at Dantzic, Odessa, and Rotterdam, for the same year, as far as they can be ascertained: from the report of* Mr. Irving, *inspector-general of imports and exports, customhouse, London, June* 5, 1841.

Average price of wheat in Great Britain, 66*s.* 4*d.*

Total number of quarters of wheat and wheat flour imported, 2,433,202 qrs.

Total number of quarters of foreign wheat and wheat flour imported, 2,284,482 qrs.

Total number of quarters of colonial wheat and wheat flour imported, 148,720 qrs.

Total number of quarters of wheat and wheat flour imported, and entered for home consumption, 2,401,366 qrs.

Average price of wheat at Dantzic, 39*s.* 6*d.*

Average price of wheat at Odessa, 24*s.* 9*d.*

Average price of wheat at Rotterdam, 49*s.* 11*d.*

—

An Account, showing the total quantities of wheat and wheat flour imported from foreign countries and from British colonies, and upon which duty has been paid since the passing of the Act 9*th George IV., c.* 60, (*July* 15, 1828,) *to January* 5*th*, 1841, *showing also the total quantity of foreign and colonial wheat and flour respectively, which has been subjected to each separate rate of duty: from the same.*

FOREIGN.

Duty paid thereon.	WHEAT.	WHEAT FLOUR.	*Duty paid thereon.*	WHEAT.	WHEAT FLOUR.
£ *s.* *d.*	*Quarters.*	*Cwts.*	£ *s.* *d.*	*Quarters.*	*Cwts.*
0 1 0 per quarter,	3,907,981	1,276,731	1 16 8 "	826	42
0 2 8 "	2,788,277	835,406	1 17 8 "	314	24
0 6 8 "	1,994,102	518,897	1 18 8 "	154	72
0 10 8 "	783,280	238,592	1 19 8 "	151	51
0 13 8 "	548,348	466,432	2 0 8 "	3	—
0 16 8 "	298,677	213,707	2 2 8 "	7	3
0 18 8 "	76,200	44,788	2 3 8 "	4	7
1 0 8 "	377,667	96,538	2 4 8 "	16	13
1 1 8 "	107,005	5,861	2 5 8 "	62	33
1 2 8 "	13,664	5,940	2 6 8 "	10	155
1 3 8 "	138,775	56,530	2 7 8 "	7	17
1 4 8 "	37,329	2,070	2 8 8 "	3	2
1 5 8 "	27,153	1,555	2 9 8 "	2	36
1 6 8 "	4,724	654	2 10 8 "	8	56
1 7 8 "	1,882	690	Admitted at an ad valorem duty, being damaged,.....	2,629	—
1 8 8 "	134,275	1,377			
1 9 8 "	61,649	101			
1 10 8 "	13,955	756	Admitted duty free, being damaged,.....	—	350
1 11 8 "	1,496	87			
1 13 8 "	908	511	or seed,.....	71	—
1 14 8 "	385	164			
1 15 8 "	154	24	Total,.....	11,322,085	3,768,335

BRITISH COLONIAL.

	Wheat. *Quarters.*	*Wheat Flour.* *Cwts.*
When the rate of duty on wheat was 0*s.* 6*d.* per quarter,	129,858	426,890
" " " " 5*s.* 0*d.* "	393,407	596,906
Total,.....	523,265	1,023,805

COMMERCE OF THE UNITED STATES WITH GREAT BRITAIN.

The following table exhibits the immense amount of trade which is annually carried on between this country and Great Britain; also clearly exhibiting the fact that we take from Great Britain, in manufactures, on an average of years, the whole value of the produce exported to that country:—

Years.	*Value (in dollars) of* IMPORTS *into Great Britain and Ireland from the United States.*	*Value (in dollars) of* EXPORTS *from Great Britain and Ireland to the United States.*
1831	26,329,352	24,539,214
1832	30,810,995	36,921,265
1833	32,363,450	37,845,824
1834	44,212,097	47,242,807
1835	52,180,977	61,249,527
1836	57,875,213	78,645,968
1837	54,683,797	44,886,943
1838	52,176,610	44,861,973
1839	59,896,212	65,964,588

THE BRITISH CORN LAWS

The question having been fairly submitted to the people of Great Britain, in their ultimate constitutional capacity, at the polls, whether they would adopt something more like reciprocity, and nearer akin to free trade, or would adhere to the system which has so long and is still operating so disadvantageously to us, and they, by electing a decided majority of the tory party to parliament upon the express ground that, if elected, they would continue that policy, it now becomes the duty of every American citizen to acquaint himself with the scope of those said corn laws, and discern how it is that they affect our trade.

To facilitate this object, we subjoin a tabular statement of the duty payable, per barrel, on American flour, under the corn laws of Great Britain, carefully prepared by an American merchant, resident in Liverpool.

By act 9, of George IV., ch. 60, the duty on foreign wheat is as follows, viz:—when the average price of wheat is at and above—

Per quarter.	*Duty per quarter.*	*Duty per bbl. on flour.*	*Per quarter.*	*Duty per quarter.*	*Duty per bbl. on flour.*
73*s.*	1*s.* 0*d.*	0*s.* 7 7.32*d.*	57*s.*	29*s.* –*d.*	17 10 5.32*d.*
72	2 8	1 7 1.4	56	30 8	18 5 3.8
71	6 8	4 0 1.8	55	31 –	19 0 19.32
70	10 8	6 5	54	32 8	19 7 26.32
69	13 8	8 2 21.32	53	33 –	20 3 1.32
67	18 8	11 2 5.16	52	34 8	20 10 1.4
66	20 8	12 5 3.16	50	36 8	22 5 15.32
65	21 8	13 0 13.32	49	37 –	22 7 29.32
64	22 8	13 7 5.8	48	38 8	23 3 1.8
63	23 8	14 2 27.32	47	39 –	23 10 11.32
62	24 8	14 10 1.6	46	40 8	24 5 9.16
61	25 –	15 5 9.32	45	41 –	25 0 25.32
60	26 8	16 0	44	42 8	25 8
59	27 –	16 7 23.32	43	43 –	26 7 7.32
58	28 8	17 2 15.16			

On barley and Indian corn, if the average price is 31*s.* and under 34*s.* the duty is 12*s.* 4*d.* per imperial quarter, and for every 1*s.* per quarter it advances, the duty is decreased 1*s.* 6*d.* until it reaches 41*s.* per qr., at which price and upwards, no more than 1*s*

per qr. is levied; and the duty increases in like manner 1*s.* 6*d.* per qr. as the price declines 1*s.* or part of 1*s.* under 33*s.* per quarter.

On oats, if the average price is 25*s.* and under 26*s.* per qr. the duty is 9*s.* 3*d.* per qr.; decreasing 1*s.* 6*d.* per qr. as the average price advances 1*s.* until it reaches 31*s.*, when at that price or more, the duty is only 1*s.* per qr.; and in like manner it is increased 1*s.* 6*d.* per qr. for every 1*s.* or part of 1*s.* per qr. the average recedes below 24*s.* per qr.

For the convenience of those who do not readily understand quarters and sterling money, I. H. Hedley has prepared the following tables exhibiting the rates of duty per bushel in federal money, together with the duty on flour per barrel in federal money, so arranged that they correspond with the preceding table, and will be at once understood. Thus, when wheat is at and over—

Per bushel.	*Duty per bushel.*	*On flour per bbl.*	*Per bushel.*	*Duty per bushel.*	*On flour per barrel.*
$2 02*c.* 6*m.*	02*c.* 8*m.*	13*c.* 0*m.*	$1 57*c.* 5*m.*	80*c.* 5*m.*	$3 95*c.* 9*m.*
1 99 8	04 9	35 2	1 55 4	85 1	4 08 8
1 97 0	18 5	88 8	1 52 6	86 0	4 21 8
1 94 2	29 6	$1 42 4	1 49 6	90 6	4 34 8
1 91 5	37 9	1 81 3	1 47 1	91 6	4 49 6
1 88 7	46 2	2 22 0	1 44 3	94 9	4 62 5
1 85 9	51 8	2 47 9	1 41 5	97 1	4 75 4
1 83 1	57 3	2 75 7	1 38 7	$1 01 7	4 88 4
1 80 4	60 1	2 88 6	1 35 9	1 02 7	5 01 4
1 77 6	62 9	3 01 6	1 33 2	1 07 3	5 16 1
1 74 8	65 7	3 14 5	1 30 4	1 08 2	5 29 1
1 72 0	68 4	3 29 3	1 27 6	1 12 8	5 42 0
1 69 3	69 4	3 42 2	1 24 6	1 13 8	5 55 0
1 66 5	74 0	3 55 6	1 22 1	1 18 4	5 69 6
1 63 7	74 9	3 68 6	1 19 3	1 19 3	5 90 2
1 60 9	79 5	3 81 1			

Mr. Hedley observes—"From the inspection of the preceding tables, it will be seen that the duty on flour is fifty per cent higher than on grain; consequently, shippers generally send wheat in bulk to England, unless the price is very high, when the duty is so small as to make the freightage more than to counterbalance the extra duties. At best, however, it is but a hazardous business, and often attended with ruinous loss to American exporters. The extra duty on flour is no doubt intended as a sort of protective tariff to English flour manufacturers, and is abundantly characteristic of English tact and statesmanship. I have no wish to make comments now; the time is coming when this subject will be canvassed in all its parts, and an administration elected that will put forth all its power to procure either a total repeal of these unjust laws, or such a modification of them as will justify American merchants in seeking the ports of Great Britain as an available market for our increasing surplus of breadstuffs."

BRITISH TRADE WITH THE EAST INDIES.

According to Mr. Stikeman's comparative statement of the number of British ships, with tonnage, etc., which entered inwards and cleared outwards from and to places within the limits of the East India Company's charter, for the quarter ending 30th June, 1841, it appears that the total number of ships entered inwards was 402, with 158,388 tonnage, and 8,249 men, showing, as compared with the same quarter of 1840, an increase of 83 ships, 35,139 tonnage, and 1,602 men. Of this total amount, 278 ships, 111,423 tonnage, and 6,056 men entered at London; 90 ships, 35,172 tonnage, and 1,583 men entered at Liverpool; 9 ships, 3,208 tonnage, and 166 men entered at Clyde, Leith, and other British ports.

The arrivals were as follows:—135 ships from Calcutta; 5 from Madras; 35 from Bombay; 14 from China; 9 from Ceylon; 28 from Singapore and Penang, (British settlements;) 12 from Philippine islands; 17 from Java and Sumatra; 75 from the island of Mauritius; 32 from New South Wales; 1 from Madagascar; 27 from Cape of Good Hope; and 11 from other ports.

The clearances outwards comprised a total of 480 ships, 194,798 tonnage, and 9,983 men, which, as compared with the same period of 1840, gives an increase of 75 ships, 40,147 tonnage, and 1,480 men.

COFFEE TRADE OF THE UNITED STATES, FROM 1821 to 1840.

Samuel Hazard, Esq., of the United States Commercial and Statistical Register, in reply to an inquiry of a member of congress relative to the comparative prices of coffee for a series of years prior to, and since, the act of 1833, abolishing the duties, has prepared the following table, taking the annual reports of the Secretary of the Treasury as the basis of his calculations. "We know of no other mode of arriving at the facts, although we are aware, from the circumstance of the different qualities of coffee being all blended together, the average thus obtained will not, probably, correspond with the actual price of any particular quality taken separately. But, for the general purpose of the present inquiry, this mode of arriving at the desired information may be a sufficiently close approximation to the truth. The value and prices of the imports being obtained from the invoices, must show correctly the cost at the place of purchase. The value of the exports is, we presume, a general average of the prices throughout the year, as obtained at the Treasury Department—and, we learn, from the customhouse—is the value of the article at the 'short price,' that is, with the drawback taken off. By adding therefore 5 cents to the prices of exports from 1821 to 1833, the average price per pound based on the valuation by the secretary may be ascertained.

IMPORTS, EXPORTS, AND VALUE OF COFFEE.

Statement, showing the imports, exports, and value of coffee into and from the United States, with the quantity left for consumption or exportation, for each year from 1821 *to* 1839, *ending September* 30, *and the average price.*

Years.	*Imports.* *Pounds.*	*Value.* *Dollars.*	*Price of Imports.*	*Consumption or Exportation.*	*Value of Exports.*	*Average Price of Exports.*	*Left for Consumption or Exportation.*
1821	21,273,659	4,489,970	21 1-10	9,337,596	2,087,479	22 1-4	11,886,063
1822	25,782,390	5,552,649	21 5-10	7,267,119	1,653,607	22 3-4	18,515,271
1823	37,337,732	7,098,119	19 1-10	20,900,687	4,262,699	20 4-10	16,437,045
1824	39,224,251	5,437,029	13 1-10	19,427,227	2,923,079	15	19,797,024
1825	45,190,630	5,250,828	11 6-10	24,512,568	3,254,936	13 1-4	20,678,062
1826	37,319,497	4,159,558	11 5-10	11,584,713	1,449,022	12 1-2	25,734,784
1827	50,051,986	4,464,391	8 9-10	21,697,789	2,324,784	10 3-4	28,354,197
1828	55,194,697	5,192,338	9 5-10	16,037,964	1,497,097	9 1-3	39,156,733
1829	51,133,538	4,588,585	9	18,083,843	1,536,565	9 1-2	33,049,695
1830	51,488,248	4,227,021	8 2-10	13,124,561	1,046,542	8	38,363,687
1831	81,757,386	6,317,666	7 7-10	6,056,629	521,527	8 6-10	75,700,757
1832	91,722,329	9,099,464	10	55,251,158	6,583,444	11 9-10	36,471,171
1833*	99,955,020	10,567,299	10 6-10	24,897,114	3,041,689	12 1-4	75,057,906
1834	80,153,366	8,762,657	10 9-10	35,806,861	4,288,720	12	44,346,505
1835	103,199,577	10,715,466	10 4-10	11,446,775	1,333,777	11 2-3	91,752,802
1836	93,790,507	9,653,053	10 3-10	16,143,207	1,985,176	12 1-4	77,647,300
1837	88,140,403	8,657,760	9 8-10	12,096,332	1,322,254	10 1-10	76,044,071
1838	88,139,720	7,640,217	8 6-10	5,267,087	502,287	9 4-10	82,871,633
1839	106,696,992	9,744,103	9 1-10	6,824,475	737,418	10 3-14	99,872,517
1840	94,996,095	8,546,222	9	8,698,334	930,398	10 6-10	86,297,761

* Viz:—Previous to the 4th March, 33,326,120 lbs., valued at $3,570,248; after 4th March, 66,628,900 lbs., at $6 997,051; making the total import for 1833 as per table.

REMARKS ON THE PRECEDING TABLE.

The importations from 1826 to 1832, both inclusive, were.....lbs. 418,667,681
Do. from 1834 to 1840,.....655,116,660

Being an increase of.....236,448,979
in the seven years succeeding 1833 over those prior to that year.

The exportations from 1826 to 1832 were.....141,836,657
Do. 1834 to 1840,..... 96,283,071

Being a decrease of..... 45,553,586
in the seven years succeeding 1833, as compared with the seven preceding it.

The consumption from 1826 to 1832 was.....276,831,024
Do. 1834 to 1840,.....558,883,589

Being an increase of.....282,002,565
in the consumption of the last seven years over the former.

The average price of the importations from 1826 to 1832 was 9 3-10 cents per lb.; and from 1834 to 1840 was 9 7-10, being a difference of 4-10 of a cent per lb. against the latter seven years.

The average price of exportations from 1826 to 1832 was 10 5-10 cents; and from 1834 to 1840 was 11 5-10, being 1 cent per lb. against the latter seven years.

It would appear from these statements, that since 1833 the amount of coffee imported has increased 56 47-100 per cent, while that exported has diminished 32 12-100 per cent. That the amount consumed has increased 101 40-100 per cent. That the cost of the article in the places of growth has advanced, as has also the price in the United States.

The great increase of consumption therefore would seem to have been induced by some other cause than the removal of the duties—probably the increase of population—and perhaps the facilities of transportation enabling it to reach the consumer in the interior at a diminished expense, while the demand has sustained the price in the market.

The increase of population between 1830 and 1840 has been about 39 2-10 per cent.

The amount consumed from 1826 to 1832 would furnish to each individual in the United States, according to the census of 1830, 3 7-10 lb. per annum; and the quantity consumed from 1834 to 1840, according to the population of 1840, would allow to each individual 4 7-10 lbs., being an increase in the latter period of 1 lb. to each, per annum.

This is independently, in both cases, of the consumption of 1833, which year has been excluded from all the preceding calculations.

Owing to the high prices of tea, it is probable that the consumption of coffee will be further extended during the present year."

AMERICAN WHALE FISHERY.

The Nantucket Inquirer publishes monthly a compendium of all the vessels engaged in this pursuit. From the list it appears that the whole number of vessels employed is 588, of which 192 sail are from New Bedford; Nantucket, 84; Fairhaven, 42; New London, 38; Sagharbor, 31; Warren, 21; Edgartown, 12; Salem, 12; Newport, 11; Stonington, 10. The others are scattered along the coast from Portland, Me., to Wilmington, Del., the latter place having 3, and the others from 1 to 10. Most of these vessels are ships, and many of them are of the largest class. Taking $20,000 as the average cost of each ship and outfits, the capital invested amounts to $11,700,000. The importation of oil into the United States during the month of August, 1841, was—of sperm oil, 11,630 barrels, or 366,345 gallons; of whale oil, 16,250 barrels, or 511,875 gallons—(in ten ships and two barks.) Of this amount 9,980 barrels of sperm oil and 6,700 whale oil were imported into New Bedford.

STATISTICS OF POPULATION.

POPULATION, ETC., OF ILLINOIS, IN 1840.

A Table, showing the population of each county in the state of Illinois, taken at the census of 1840; *also, the number of square miles in the several counties in that state; from official documents, compiled by* J. A. TOWNSEND, *Esq., of Alton, Illinois.*

COUNTIES.	*Population.*	*Square Miles.*	COUNTIES.	*Population.*	*Square Miles.*
Adams,	14,461	791	Livingston,	759	1,028
Alexander,	3,316	369	Logan,	2,333	576
Bond,	5,004	300	Madison,	14,433	790
Boone,	1,705	414	Monroe,	4,490	360
Brown,	4,182	306	Marion,	4,742	576
Bureau,	3,063	810	Montgomery,	4,470	684
Cass,	2,968	288	Macoupin,	7,832	864
Carroll,	1,023	432	Morgan,	19,154	612
Calhoun,	1,741	252	McLean,	6,793	1,512
Clinton,	3,724	468	Macon,	3,038	972
Cook,	10,201	1,008	M'Donough,	5,304	576
Champaign,	1,475	1,116	Mercer,	2,352	558
Clay,	3,229	576	M'Henry,	2,578	486
Crawford,	4,468	410	Marshall,	1,849	468
Clark,	7,584	504	Menard,	4,426	504
Coles,	9,616	1,008	Ogle,	3,490	756
Christian,	1,877	720	Pope,	3,220	504
De Kalb,	1,708	648	Perry,	3,220	432
De Witt,	3,247	510	Pike,	11,736	792
Du Page,	3,533	378	Putnam,	2,131	252
Effingham,	1,676	486	Peoria,	6,028	668
Edwards,	3,107	216	Randolph,	7,915	576
Edgar,	8,237	504	Rock Island,	2,619	432
Fayette,	6,334	720	Scott,	6,223	216
Franklin,	3,683	432	St. Clair,	13,629	684
Fulton,	13,149	918	Shelby,	6673	900
Gallatin,	10,913	768	Sangamon,	14,716	828
Greene,	11,963	504	Schuyler,	6,927	360
Henry,	1,262	756	Stark,	1,573	360
Hardin,	1,329	104	Stephenson,	2,896	276
Hamilton,	3,963	423	Tazewell,	7,220	992
Hancock,	9,901	756	Union,	5,523	385
Iroquois,	1,693	1,404	Vermilion,	9,306	1,692
Johnson,	3,640	484	Washington,	4,942	576
Jefferson,	5,765	576	White,	7,913	461
Jackson,	3,580	648	Wayne,	5,125	720
Jasper,	1,445	468	Wabash,	4,240	180
Jo Daviess,	6,180	720	Warren,	6,719	928
Jersey,	4,507	324	Will,	10,024	1,188
Kane,	6,501	648	Winnebago,	4,608	432
Knox,	7,062	720	Whitesides,	2,515	720
Lawrence,	7,075	540	Williamson,	4,282	432
La Salle,	9,377	1,692			
Lake,	2,634	450	TOTAL,	476,273	54,604
Lee,	2,033	720			

WHITES.

Under—	*Males.*	*Females.*	*Under—*	*Males.*	*Females.*	*Under—*	*Males.*	*Females.*
5 years,	48,004	44,067	40 years,	31,075	23,367	90 y'rs.	232	183
10 "	37,375	33,909	50 "	15,623	12,508	100 "	33	36
15 "	31,066	28,333	60 "	8,558	6,525	110 "	9	3
20 "	24,882	24,189	70 "	5,020	2,871			
30 "	51,921	38,864	80 "	1,106	848	TOTAL,	254,904	215,703

COLORED.

Free,.....	Males,	1,843.....	Females,	1,655
Slaves,.....	"	142.....	"	161
TOTAL,.....		1,985		1,816

NUMBER OF PERSONS EMPLOYED IN

Mining,.....	1,227	Navigation of the ocean,.....	75
Agriculture,.....	97,781	" " rivers and lakes,...	285
Commerce,.....	2,523	Learned professions,.....	1,931
Manufactures and trades,.....	12,488		

DEAF AND DUMB, ETC.

Deaf and Dumb,.....	146	Blind,.....	80	Insane, and Idiots,.....	200

COLLEGES, ETC.

Colleges,.....	Number,	7.....	Students,	311
Academies,.....	"	41.....	"	1,907
Common Schools,.....	"	1,200.....	"	33,724
At public charge,.....		.....	"	1,318

Number of white persons over 20, who cannot read and write,.....28,780

MERCHANTS' TEMPERANCE SOCIETY.

It is with great pleasure that we record on the pages of this magazine the establishment of a merchants' temperance society in the "commercial emporium." We ardently hope the example may be followed in every city of the Union, believing as we do, that temperance is one of the corner-stones of commercial success.

The first meeting of the society took place at Clinton Hall, that monument of mercantile liberality, on Wednesday evening, 1st September. At this meeting the following constitution was unanimously adopted:—

CONSTITUTION.

1. This society shall be called "The Merchants' Temperance Society of the City of New York."

2. The objects of this society shall be to promote the cause of temperance, by entirely abstaining from the traffic and use, as a beverage, of all intoxicating liquors; and, by persuasion, as well as by example, to influence the great community of merchants in the United States, and in foreign countries, to adopt the same principle.

3. Any merchant of the city of New York, subscribing the following declaration, may become a member of this society:—

"*Declaration.*—I approve of the objects of the Merchants' Temperance Society of the City of New York, as set forth in the second article of the constitution of said society, and pledge my efforts and personal example to the promotion of those objects."

4. The officers of this society shall be a president, five vice presidents, a corresponding and a recording secretary, and a treasurer; who, together with ten managers, shall constitute a board, whose duty it shall be to conduct the operations of the society.

5. The officers and board of management shall hereafter be elected at the annual meeting of the society, which shall be held in the month of December, each year.

THE "BOOK TRADE."

We have been compelled to crowd out a large number of notices of new works, in consequence of the great length of the three first articles in the present number. Our friends of the "book trade" shall be attended to in our next, at the expense of an additional sheet, if necessary.

THE BANKRUPT LAW.

In order to furnish our readers with an authentic copy of this important document, for reference, we applied to Mr. Webster, the Secretary of State, for a revised copy, and we have great pleasure in acknowledging the courtesy and promptness of that gentleman in complying with our request.